

IN-2-58

US EPA RECORD CENTER REGION 5



589693

FACILITIES PLAN ADDENDUM

FOR

DISPOSAL OF SEWAGE SLUDGE

BELMONT GENERAL SITEWORK PROJECT

INDIANAPOLIS

ADVANCED WASTEWATER TREATMENT PLANT

MAY 2, 1979

ENVIRONMENTAL
ENGINEERING

REID, QUEBE, ALLISON, WILCOX & ASSOCIATES, INC.

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EXECUTIVE SUMMARY

The City of Indianapolis must remove approximately 531,350 cubic yards of stabilized sewage sludge from existing sludge lagoons of the City's Belmont Wastewater Treatment Plant to enable construction of new treatment facilities to provide improved effluent quality. The low bidder selected for the sludge disposal work proposed to dispose of the sludge on agricultural land in Boone County. Regulatory agency approvals were obtained after performance of prerequisite procedures and approximately 333,200 cubic yards have been transported to Boone County for disposal. However, there were approximately 198,150 cubic yards of "heavy" sludge too thick to be handled by the Contractor's equipment.

The Contractor proposed to utilize the heavy sludge as part of an overall plan to reclaim land previously occupied by an inoperative landfill which had been burning out of control for a number of months. The owner of the landfill proceeded to obtain what was believed by the City to be State regulatory agency approval to dispose of sludge at the Lane Landfill. The City believed that additional USEPA approvals were not necessary since the sludge was being disposed of in a State approved disposal site.

Approximately 198,500 cubic yards of heavy sludge were hauled to the Lane Landfill before the Contractor was precluded from disposing of sludge in that manner.

Hauling of heavy sludge to Lane Landfill ceased with approximately 10,000 cubic yards remaining on site, due to a State Stream Pollution Control Board letter providing a "clarificaton" of the previous "non-objection" to the disposal of sludge to the Lane Landfill. At this point in time, the City was also advised by USEPA, Region V, that an Environmental Impact Assessment and Facilities Plan Addendum would be required to support the disposal of sludge in the Lane Landfill.

The positive benefits of the disposal of heavy sludge in the Lane Landfill include the following:

1. The landfill fire was extinguished.
2. The landfill site is being restored from an unusable eyesore and habitat for vermin to an aesthetically attractive area suitable for future use.
3. Removal of sludge was expedited, thereby increasing the probability of achieving the specified effluent quality by completion of the new treatment facilities in the minimum amount of time.

Possible negative effects of the disposal of sludge to the landfill include the leaching of contaminants from the sludge into the groundwater.

All parties concerned have expressed the desire to resolve the environmental and funding problems as quickly as possible. The City stands ready to meet, at the earliest moment, with those concerned in order to resolve the matter to the satisfaction of all.

FACILITIES PLAN AMENDMENT

INTRODUCTION

The City of Indianapolis has been required to justify the disposal of sewage sludge in the Lane Landfill of Marion County, Indiana. Disposal of this sludge is part of the Belmont General Sitework Contract which is part of the City's "AWT Project" to increase the capacity and to upgrade the effluent quality of the City's two wastewater treatment plants. The costs of the AWT Project are supported, in part, by State and Federal funds.

A considerable number of City, State and Federal agencies are involved in the funding and regulation of a project the size of the Indianapolis AWT Project. The problem is intensified when the project involves the off-site disposal of stabilized sewage sludge as does the Belmont General Sitework contract. Despite the best efforts of those concerned, communications between all parties will not be optimal at all times. The City (Grantee) believes that the procedures followed, with respect to disposal of sludge on the Lane Landfill, were sufficient to satisfy the requirements of the appropriate regulatory and funding State and Federal agencies. It is hoped that the following review of documents associated with the project will support the City's position. It will be noted that no new

information is presented. Existing information, known to two or more of the project participants, has been brought together. A wide dissemination of this document is planned to make this information available to all interested parties. Two attachments prepared by the law firm of Baker & Daniels review the following specific questions of the procedures of the Grantee and it's Consultant:

1. Regulatory agency approval of sludge disposal in Lane Landfill - Attachments F.
2. Necessity of contract change order for Lane Landfill sludge disposal - Attachment H.

Although, The City believes that correct procedures have been followed, it is having, in response to informal State and EPA requests, Environmental Impact Assessment and Facilities Plan Addendum documents prepared to evaluate the disposal of sludge in Lane Landfill.

PLANNING

Indianapolis prepared a Facilities Plan for Advanced Wastewater Treatment Facilities at the Belmont and Southport Treatment Plants as part of a Step 1 Construction Grant requirement. The purpose of the facilities proposed in the Plan was to increase capacity of the wastewater treatment plants and to upgrade the effluent

quality in accordance with the NPDES permits. The major problem with the receiving stream, the West Fork of the White River, is one of low dissolved oxygen concentrations during low flow conditions. Pilot plant studies of various treatment processes were undertaken prior to completion of the Facilities Plan. Effluent improvements included conversion of ammonia nitrogen, improved BOD removal, and improved suspended solids removal.

The existing Belmont Wastewater Treatment Plant site included 18 sludge lagoons that covered approximately 40 acres of land. In determining the location of the new treatment facilities, proximity to those portions of the wastewater treatment plant to remain in service and prudent land usage were considered in addition to cost-effectiveness. The Facilities Plan contemplated the sludge disposal from the required lagoon area being on the Belmont Plant Site. The sludge was to undergo chemical fixation prior to storage on the northern portion of the Belmont Plant site on an area previously used as a solid waste disposal site. The Facilities Plan determined that the most cost-effective location for the new facilities at the Belmont Plant was an area on which 10 existing sludge holding lagoons were located. Two public meetings were held several months prior to the Public Hearing for the Facilities Plan which was held on January 11, 1975. The Facilities Plan was submitted to the Indiana State Board of Health (ISBH) on March 11, 1975.

DESIGN

Fast-track design for the General Sitework was initiated in March, 1975. Chemical fixation of sludge with disposal on the Belmont Site was the only method allowed by the specification for removal and deposition of the sludge in the preliminary submittal of the bid documents to the ISBH in May, 1975.

On June 27, 1975, Mr. Carl Fox, (at that time Chief of the Construction Grants Section of the Indiana State Board of Health) required that the specifications be modified to allow off-site disposal of sludge. This requirement followed his telephone conversation with Mr. Mark Pinnick (at that time Chief of the Indiana Construction Grants Section, Region V, U.S. Environmental Protection Agency (USEPA)).

In the meantime, the USEPA requested review of the choice of location for the new Belmont facilities. A Facilities Plan addendum (attachment A1 and A2) investigated four alternate sites which would not require removal of the sludge. This site analysis was submitted to the ISBH and USEPA on May 2, 1975. The conclusion of the analysis was that the most cost-effective location was on the site of 10 existing sludge lagoons (Lagoons 1 through 10 out of 18) in accordance with the previously submitted the Facilities Plan.

In accordance with the USEPA request, the Contract Documents for the Belmont General Sitework (USEPA Grant No. C180747-02) were modified to allow for both on-site and off-site disposal of the sludge and bids were received October 21, 1975. The low bidder elected to utilize chemical fixation of the sludge for on-site deposit. A subsequent legal judgment resulting from a taxpayer's suit precluded the City from awarding a contract.

Indianapolis had developed an Ad Hoc Committee in which the USEPA, ISBH, City, and Reid, Quebe, Allison, Wilcox & Associates, Inc., could meet and discuss problems with respect to the Project. An Ad Hoc Committee Meeting was held March 30, 1976, prior to preparation of bid documents for rebidding of the General Sitework Project, to discuss on-site versus off-site disposal of sludge (minutes of meeting, Attachment B). Indianapolis presented information indicating potential problems associated with off-site disposal options including potential delays to the project. Further, Indianapolis requested that sludge disposal be limited to on-site only. The USEPA denied this request and stated that the off-site option had to be included.

Bid Documents were revised and resubmitted to the ISBH and USEPA. The Bid Documents permitted four options regarding disposal of the sludge (copy of applicable specification section as attachment C):

The Bid Documents, which included the off-site disposal option, were approved prior to bidding. At that time, the Facilities Plan did not cover off-site disposal of sludge. The original Facilities Plan included only on-site disposal. It was not possible to prepare an environmental assessment for off-site disposal prior to receipt of bids because it was unknown which disposal method would be proposed by the low bidder. Because of this problem, the low bidder by the Bid Documents was required to supply the required environmental information and to hold any public hearings required.

- (1) chemical fixation with on-site disposal
- (2) dewatering of all sludge in Lagoons 1 through 18 with on-site disposal in Lagoons 11 through 18
- (3) off-site disposal with land application of the sludge
- (4) any off-site method for which the bidder could obtain regulatory agency approval.

Bids were received in November, 1976 with Tousley-Bixler Construction Co. being the low bidder. The Tousley-Bixler bid was based on off-site disposal option including application of sludge to agricultural land in adjacent Boone County.

CONSTRUCTION

Agricultural Land Sludge Disposal

Tousley-Bixler and their sludge disposal subcontractor, Organic Materials, prepared an environmental assessment for land application of sludge on agricultural land in Boone County, which acted as a Facilities Plan addendum. Additionally, they held a public hearing on land application in Boone County in which they intended to spread sludge. After numerous meetings with the ISBH and USEPA and extensive additional sampling and analysis of the sludge within each lagoon under the direction of the USEPA, an approval to apply sludge on farmland in Boone County was obtained. A contract was executed with Tousley-Bixler on May 23, 1977. Specific approval to spread sludge in Boone County and a notice to proceed with off-site activities (sludge spreading) was not obtained until Sept. 8, 1977.

NS
11/17/77
GO SITE
107

Land Sludge Disposal in Landfills

One portion of the project called for the removal of the contents of a sizable grease lagoon, contaminated with PCB's. No approved landfill was available within Indiana to handle waste containing the high concentration of PCB's within the grease. A suitable approved landfill was located by the Contractor in Wayne County, Michigan.

A representative of Reid, Quebe, Allison, Wilcox contacted Mr. Charles Brasher of USEPA Region V Planning Branch February 21, 1978 concerning sludge and grease going to landfills. Mr. Brasher verbally indicated that the USEPA did not need to approve sludge or grease going to a State approved landfill. Additionally, he verbally noted that condition number 7 of grant number C180747-02 was meant to apply to land application or a method that did not involve the use of an approved landfill. This understanding was noted in a letter from RQAW to Mr. Brasher March 14, 1978 with a copy to Mr. R. Penno (Construction Grants Project Manager) of the ISBH (Attachment D). Based on this understanding, Indianapolis believed that no additional environmental review was required when a State approved landfill was utilized.

The Specifications, in Section 02242, (Attachment C) paragraph 1.03-0, allow the sludge or any other material to be placed in an "approved" landfill. Although not specifically addressed in the specifications, it was evident that portions of the sludge on the bottom would not be suitable for land spreading because of being intermixed with soil or being too thick. The sludge in lagoons 1 and 2 was much too thick for controlled spreading on farmland.

The Lane Landfill (formerly the McKinley Thompson Landfill) is located directly across White River from the project and was a potential disposal location. The Lane Landfill had a

serious internal fire starting in November, 1976. The smoke from the fire was a nuisance and posed a serious health hazard for a large area of the Indianapolis near south side. Prolonged attempts by the owner to extinguish the fire had failed.

Lagoons 1 and 2 contained sludge which was of sufficient dryness to support the weight of dump trucks. A layer of ash covered the sludge in these lagoons. Since this sludge consistency was not suitable for land application, and to help solve the environmental problems of the burning Lane Landfill, the Contractor requested that this sludge be landfilled in the Lane Landfill if ISBH approval could be obtained.

In an attempt to smother the fire and provide an acceptable cover for the landfill, the landfill owner proposed to use the heavier sludge from the Belmont Site to provide additional cover for the landfill. The sludge was to be mixed with soil and flyash, and lime was to be added for further stabilization. Soil was to provide a final covering. Sludge leachate data were supplied at the request of the ISBH prior to the ISBH providing letters of authorization (additional information is contained in the Characterization of Sludge as Attachment E). After the landfill owner obtained the authorization from the ISBH, Tousley-Bixler began to haul sludge to the landfill in November, 1977.

The owner of the Lane Landfill proceeded to request approval from the ISBH to transfer the unpumpable sludge from Lagoons 3, 4, 5, 7, 8, 9, & 10 to the landfill to be disposed of in the same manner as the sludge from Lagoons 1 and 2. The Contractor's procedure for removing the sludge from the lagoons was as follows: The lagoons were mixed as the sludge was removed from the lagoons to Boone County. However, as the Contractor lowered the level in the lagoons, the concentration of suspended solids increased until reaching such a point that the Contractor could no longer pump the material. Land spreading of the sludge in Boone County was also difficult and impractical at these high concentrations. The unpumpable sludge, along with any dirt scraped from the bottom of the lagoon, was taken to the Lane Landfill upon the landfill owner's receipt of authorization from the ISBH. Such authorization is summarized in the attached legal opinion (Attachment F). Additional information is contained in Attachment G entitled Sludge Disposal Method at Landfill. Some of the lagoons had large quantities of unpumpable sludge, others had much less. A compilation of the quantities, concentrations, etc. is presented in Attachment H entitled Final Disposition of Belmont Lagoon Sludge. Unpumpable sludge from the bottom of Lagoon 7 is still on the Belmont Site as a result of a stop order from ISBH dated Jan. 29, 1979 (attached as Attachment I).

The sludge did extinguish the fire and according to an ISBH memorandum dated May 10, 1978 from Don Magoun to David Lamm, ". . . the McKinley Thompson demo site has already been vastly improved in appearance." Thus a very positive environmental result was obtained by utilizing the sludge at the Lane Landfill.

COST-EFFECTIVE ANALYSIS

Cost effectiveness of off-site disposal of sludge was not considered in the original Facilities Plan. At the time the bid documents were revised to allow inclusion of off-site disposal of sludge, it was determined that the most cost-effective method would be the method employed by the low bidder. In other words the proof of cost-effectiveness was the low bid.

The low bidder on the Belmont Sitework Project was Tousley-Bixler Construction Company, with a total bid of \$12,138,602.93. The price bid included a unit price of \$11.79 per cubic yard for sludge disposal. This represented the low bid and is therefore the basis for any future cost-effective analysis.

Included as Attachment J is an analysis prepared by Reid, Quebe, Allison, Wilcox, of the cost for landfilling of sludge at the Lane Landfill. This unit price estimate determines the cost of placing sludge in the Lane Landfill to be \$11.56 per cubic yard.

Included as Attachment K is an additional analysis prepared by Tousley-Bixler of the cost for landfilling of sludge at the Lane Landfill. This estimates the cost to be \$13.13 per cubic yard. Since that time Tousley-Bixler has certified that there will be no increase in cost for sludge removed to the Lane Landfill. Therefore the cost of landfill equals the cost of land disposal.

The U.S. Army Corps of Engineers, acting as construction observers for the EPA, have agreed that \$11.79 per cubic yard is an equitable cost for removal of sludge to the landfill.

Based on these cost estimates it is concluded that removal of sludge to Lane Landfill is as cost-effective as removal to Boone County.

An extremely important benefit associated with removal to the landfill is that the contractor was able to remove sludge during periods when removal to Boone County was impossible. This allowed the project to progress. Delay claims by other contractors unable to move onto the Belmont Site could be as high as \$10,000 per day. This figure should be used as a credit in the cost-effective analysis of utilizing the landfill.

Another option that could have been used instead of landfilling was an alternate site for land application. The Contractor investigated this option. The nearest potential location for land application was determined to be in Prebble County, Ohio. The actual cost of the application is probably roughly equivalent to the cost of spreading in Boone County. The cost difference comes with transportation costs. One round trip to Prebble County, Ohio is approximately 140 miles compared with approximately 60 miles to Boone County. Obviously, this would cause an increase in the unit price, causing it to be greater than \$11.79 and, therefore not cost-effective.

11/20/79 - 11/20/79
City Landfill
L. A. Jones
11-18

In summary it was cost-effective, as defined by the competitive bid, to use the Lane Landfill as a disposal site for sludge from the Belmont Sitework Project.

SUMMARY

THE CITY'S position is that it had reason to believe that the City had advised the appropriate State and Federal regulatory and funding agencies and that prerequisite approvals had been obtained. It is obvious, at this time, that this opinion is by no means currently universal in terms of opinions expressed by a number of ISBH and USEPA staff members. It appears, in retrospect, that communication from the City of Indianapolis to specific sections of the ISBH and the USEPA may not have been as explicit as it should have been.

NONE

However, based upon;

- 1. the City's understanding that landfill was allowed by the specification
- 2. that USEPA approval and additional environmental review was not required if sludge were going to an ISBH approved landfill
- 3. that the cost of going to the landfill was approximately equal to the cost of land application
- 4. that positive environmental effects would result, the Contractor was allowed to use the landfill for disposal of sludge.

FACILITIES PLAN ADDENDUM

FOR

DISPOSAL OF SEWAGE SLUDGE

BELMONT GENERAL SITEWORK PROJECT

INDIANAPOLIS

ADVANCED WASTEWATER TREATMENT PLANT

MAY 2, 1979

ATTACHMENT 1A

May 2, 1975

Mr. Todd Cayer, Chief
Construction Grants
Region V
United States Environmental Protection Agency
Chicago, Illinois 60601

- Attention: Mr. Mark Pinnick

Dear Mr. Cayer:

Enclosed please find the alternative site analysis as requested by Mr. Pinnick on April 24, 1975. We have included a vicinity map with each alternative site analysis to facilitate your review.

Please note that factors common to all alternative sites have been deleted so that the cost difference between sites can more readily be approached. Levee costs have not been included for chemical fixation since levees are required at this site to protect the existing primary equipment.

Our analysis shows that chemical fixation of the sludge lagoons at the Belmont site and the utilization of this recovered area as the site for advanced wastewater treatment facilities is the least expensive option available to the City of Indianapolis. Further, the City of Indianapolis does not believe that moving the sludge to an alternative landfill site is an environmentally acceptable method of disposal.

If you have questions or comments, please do not hesitate to contact us.

Yours truly,

David E. Vernehm

DEV:ef

Enclosures

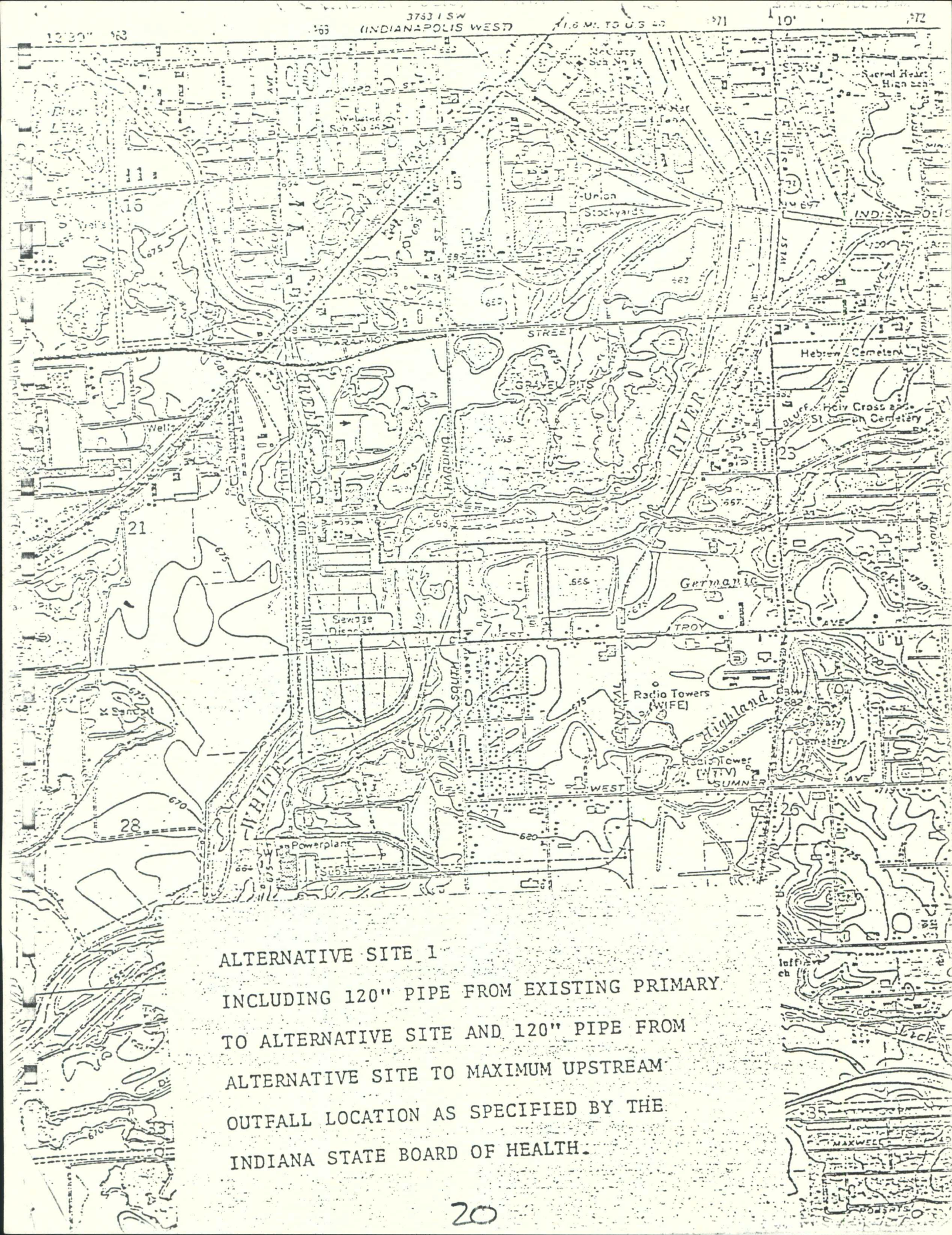
cc: Mr. I. Spencer - DFW
Dr. R. F. Dukasch - Purdue/DFW
C. Orzechowski - USEPA
Oral Hart - IEPCH
R. Miles - IEPCH
R. Penno - IEPCH
R. Riener - RPAW
D. Wells - DFW

Alternative Site 1
East of Existing Facility,
South of White River

Land Acquisition - 50 acres @ \$10,000/Ac =	\$ 500,000.00
Levee - 196,666 cys @ \$3.50/cys =	688,331.00
4,000 ft of 120" pipe @ \$550.00/ft =	2,200,000.00
Fill one lake 1,161,600 cys @ \$3.00/cys =	3,484,800.00
One additional pump station =	3,500,000.00
Total	<u>\$10,373,131.00</u>

Problems Associated With This Site

1. Land not zoned
2. Land not owned
3. White River must be crossed at least one time with a 120" pipe.
4. Land utilized for existing sludge lagoons will still be lost to productive use.
5. The advanced wastewater treatment section will be physically separated from the primary treatment section causing administrative and maintenance difficulties.
6. Poor land utilization



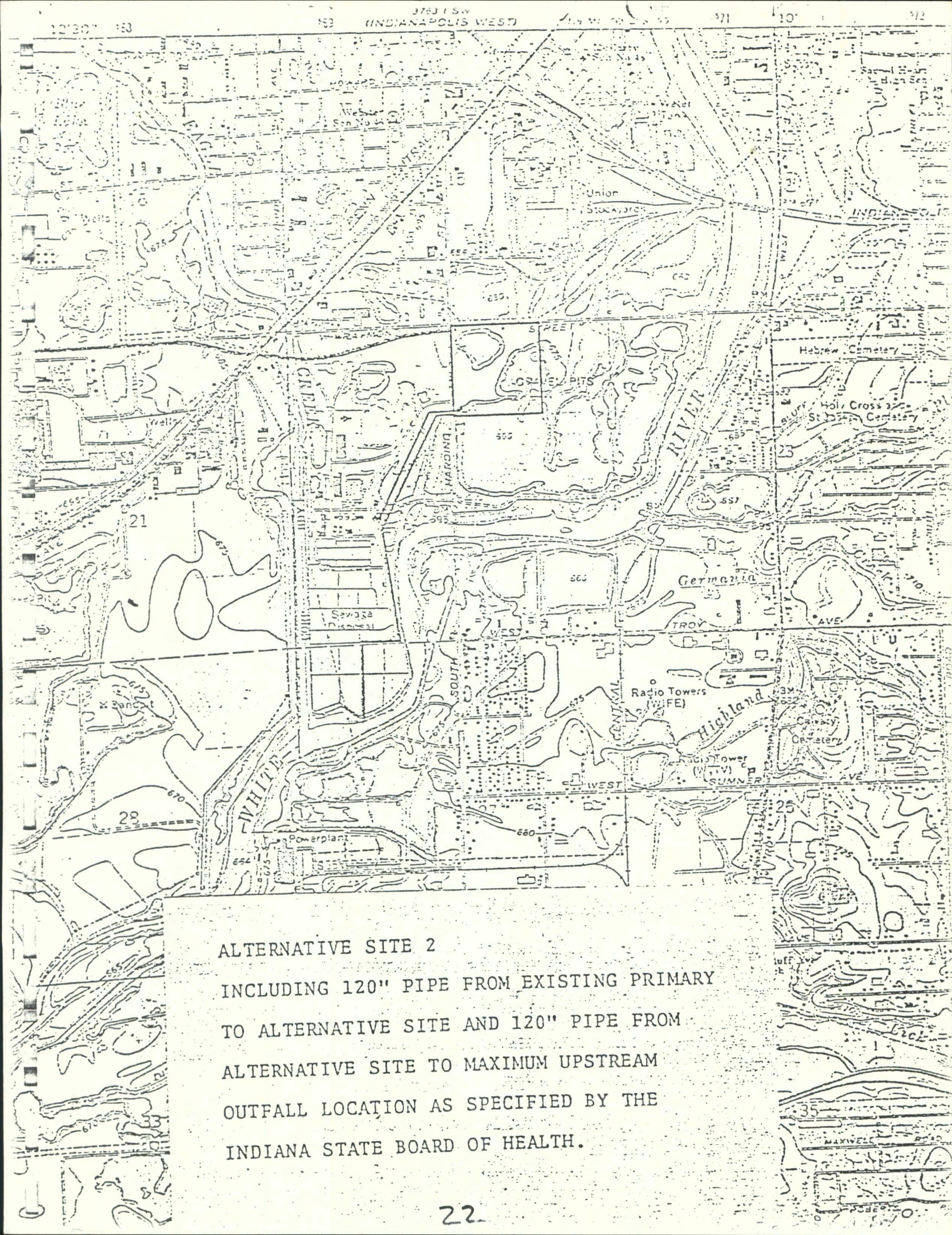
ALTERNATIVE SITE 1
INCLUDING 120" PIPE FROM EXISTING PRIMARY
TO ALTERNATIVE SITE AND 120" PIPE FROM
ALTERNATIVE SITE TO MAXIMUM UPSTREAM
OUTFALL LOCATION AS SPECIFIED BY THE
INDIANA STATE BOARD OF HEALTH.

Alternative Site 2
East of Existing Facility,
North of White River

Land Acquisition - 50 acres @ \$10,000/Ac =	\$ 500,000.00
Levee - 131,111 cys @ \$3.50/cys =	458,838.00
7,500 ft of 120" pipe @ \$550.00/ft =	4,125,000.00
Fill 834,107 cys @ \$3.00/cys =	2,652,320.00
One additional pump station =	3,500,000.00
Total	<u>\$11,235,208.00</u>

Problems Associated With This Site

1. Land not owned
2. Land not zoned
3. Significant potential for public outcry
4. Decreases recreational potential in an area currently very low in recreational potential.
5. The advanced wastewater treatment section will be physically separated from the primary treatment section causing administrative and maintenance difficulties.
6. Land utilized for existing sludge lagoons will still be lost to productive use.
7. Poor land utilization



ALTERNATIVE SITE 2

INCLUDING 120" PIPE FROM EXISTING PRIMARY
TO ALTERNATIVE SITE AND 120" PIPE FROM
ALTERNATIVE SITE TO MAXIMUM UPSTREAM
OUTFALL LOCATION AS SPECIFIED BY THE
INDIANA STATE BOARD OF HEALTH.

Alternative Site 3
North of Existing Facility

This was a garbage dump (not a sanitary landfill) Most of the area has approximately 40' of garbage. This would need to be removed.

Remove garbage from 30 acres

1,936,000 cys @ \$3.00/cys =	\$ 5,808,000.00
Fill 1,936,000 cys @ \$3.00/cys =	5,808,000.00
5,600 ft of 108" pipe @ \$550.00/ft =	3,080,000.00
Levee - 91,800 cys @ \$3.50/cys =	321,300.00
One additional pump station =	<u>3,500,000.00</u>
Total	\$18,517,300.00

Problems Associated With This Site

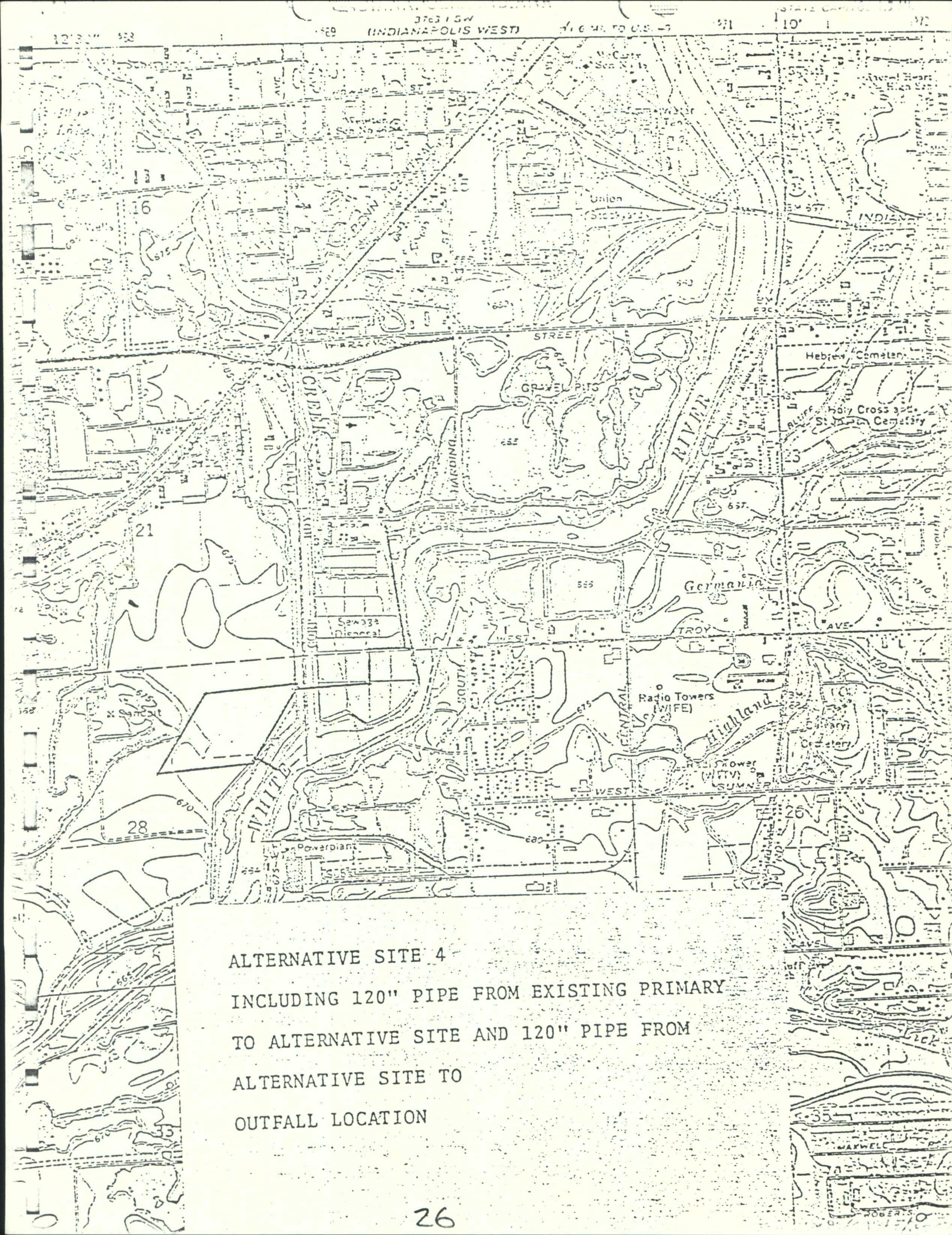
1. Planned use of the area is for a park.
2. Land utilized for existing sludge lagoons will still be lost to productive use.

Alternative Site 4
West of Eagle Creek,
South of Existing Landfill

50 acres @ \$12,500/acre	\$ 625,000.00
Additional pumpage from primary to filters =	973,780.00
Bridge across Eagle Creek =	350,000.00
Additional soils testing =	70,000.00
3,700' of 120" pipe @ \$550.00/ft =	2,035,000.00
Levee - 197,350 cys @ \$3.50/cys =	690,725.00
One additional pump station =	<u>3,500,000.00</u>
Total	\$8,244,505.00

Problems Associated With This Site

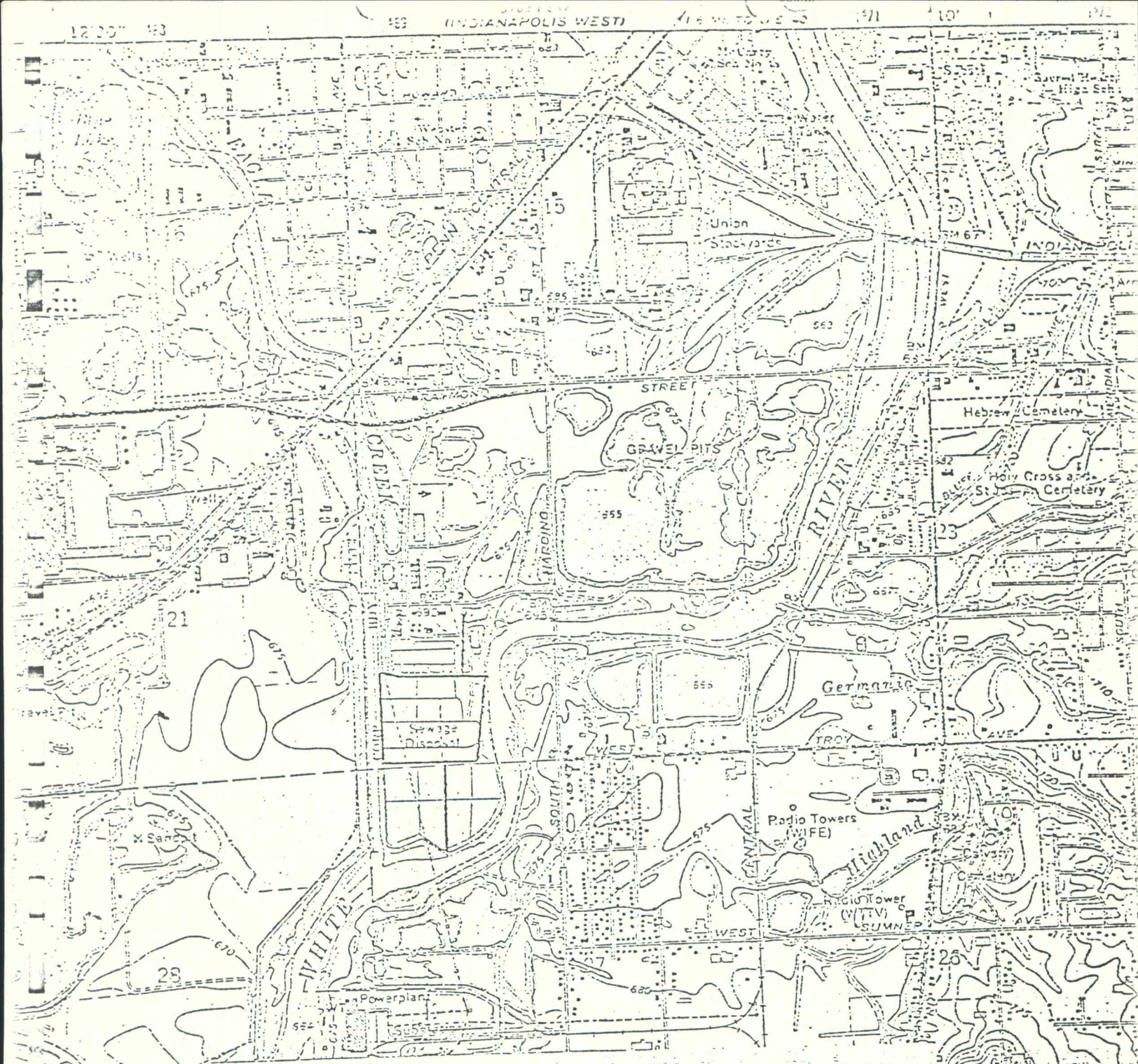
1. Land not zoned
2. Land not owned
3. Utilization of this site decreases potential landfill area.
4. This is a prime industrial location.
5. The advanced wastewater treatment section will be physically separated from the primary treatment section causing administrative and maintenance difficulties.
6. Land utilized for existing sludge lagoons will still be lost to productive use.
7. Poor land utilization



ALTERNATIVE SITE 4
INCLUDING 120" PIPE FROM EXISTING PRIMARY
TO ALTERNATIVE SITE AND 120" PIPE FROM
ALTERNATIVE SITE TO
OUTFALL LOCATION

Chemical Fixation

92,094,000 gallons @ \$0.05 =	\$4,604,700.00	@ \$0.04 =	\$3,683,760.00
Fill 700,000 cys @ \$3.00 =	2,100,000.00		2,100,000.00
Haul			
456,000 cys @ \$0.35/cys =	<u>159,600.00</u>		<u>159,600.00</u>
Total	\$6,864,300.00		\$5,943,360.00



EXISTING SLUDGE LAGOONS - CHEMICAL
FIXATION ALTERNATIVE INCLUDING 120" PIPE
FROM EXISITNG PRIMARY TO ALTERNATIVE SITE
AND 120" PIPE FROM ALTERNATIVE SITE TO
MAXIMUM UPSTREAM OUTFALL LOCATION AS
SPECIFIED BY THE INDIANA STATE BOARD OF
HEALTH.

Alternate Site Recap

Site 1	\$10,373,131.00
Site 2	11,236,208.00
Site 3	18,517,300.00
Site 4	8,244,505.00
Chemical Fixation	6,864,300.00

Parameters For Landfill

1. The area must not be in a flood plain.
2. The area must have at least fifteen (15) feet of clay as the surface layer.

The following disposal method is recommended:

1. Trenches to be dug on seven (7) foot centers.
2. Trenches to be two (2) feet wide.
3. Trenches to be ten (10) feet deep.
4. Sludge to be deposited in two (2) foot lifts with six (6) inch of cover between lifts and two (2) feet of cover at the top.
5. The solids content must be at least 30% Currently they range between 10% and 20% assume 15%
6. Vacuum trucks must be utilized. The largest available size in this area is 4000 gallon.

Based on the parameters, the following estimate has been prepared:

$$1 \text{ acre} = 208.7 \text{ feet} \times 208.7 \text{ feet}$$

Linear feet of trench per acre

$$\frac{208.7}{7} \times 208.7 = 6221.34 \text{ lin. ft./acre}$$

Gallons that could be applied to one acre
(2' wide trench, filled 8' deep)

$$(6221.34) (2) (6) = 74656.08 \text{ cu. ft./acre}$$

$$(74656.08 \text{ cu. ft./acre}) \frac{7.48 \text{ gallons}}{1 \text{ cubic foot}} = 558,427.48 \text{ gallons acre}$$

Total amount of sludge = 93,100,000 gallons @ 15% solids or 186,200,000 gallons @ 30% solids.

Dewatering has been shown to be impractical sawdust or equal must be added to increase the solids content.

$$\text{Total acreage required} = \frac{186,200,000}{558,427.48} = 333.4 \text{ acre}$$

$$183.61 \text{ acre approximately} = 333.4 \text{ acres}$$

$$333.4 \times \$2,000/\text{acre} = \$666,872.00$$

$$\text{Total Land} = \$666,872.000$$

Cost of trenching

(333.4 acres) (6221.34 lin. ft./acre) = 2074194.76 lin. ft.
(2' wide trench, 10' deep)

$$\frac{(2074194.76) (2) (10)}{27} = 1,536,440.56 \text{ cubic yards}$$

1,536,440.56 cubic yards @ \$2.00/cubic yard = \$3,072,881.12

2 Total Trenching = \$3,072,881.12

Hauling Costs

The Geologic Map of the Indianapolis 1° x 2° Quadrangle, Indiana and Illinois, showing bedrock and unconsolidated deposits, published by the Indiana Department of Conservation, 1961 lists the Belleville, Indiana area as the closest clay area to the Belmont Site. This is approximately 20 miles from the existing sludge lagoons. Assuming that 333 acres can be purchased and zoned suitably in this area, the following cost estimate applies.

Based on a 3,000 gallon truck and a 2.5 hour complete trip time,

Driver @ \$8.00/hour

Truck @ \$22.00/hour

$$\$30.00/\text{hour} \times 2.5 \text{ hours} = \$75.00$$

Number of trips needed total $\frac{93,100,000 \text{ gallon}}{3,000 \text{ gallon/trip}} = 31,033 \text{ trips}$

$$(\$75.00/\text{trip}) (31,033 \text{ trips}) = \$2,327,475.00$$

3 Total Hauling = \$2,327,475.00

Lagoon Mixing

The sludge lagoons must be mixed before loading into a truck.

$$93,100,000 \text{ gallons} @ \$0.025/\text{gallon} = \$2,327,500.00$$

4 Total mixing Cost = \$2,327,500.00

The lagoons must be backfilled with a suitable material. This figure is common to both chemical fixation and landfill.

$$700,000 \text{ cys} @ \$3.00/\text{cys} = \$2,100,000.00$$

5 Total Fill = \$ 2,100,000.00

Total Cost	#1 = \$	666,872.00
	#2 =	3,072,881.00
	#3 =	2,327,475.00
	#4 =	2,327,500.00
	#5 =	2,100,000.00
Total	= \$	10,494,728.00

Cost per Gallon = $\frac{\$10,494,728.00}{93,100,000 \text{ gallons}}$ = \$0.1127/gallon

Other factors that should be considered include:

1. In order to meet the Indianapolis NPDES Permit No. IN0023183 500,000 gallons of sludge must be handled each day. Based on a 2.5 hour trip time, one 3,000 gallon truck could make 4 trips per day handling 13,000 gallons per day. Therefore, 42 trucks would be required to handle the necessary volume. These trucks are not available and a one year minimum delivery time is required.
2. It is extremely unlikely that a suitable 333.4 acre site can be found and zoned within a reasonable time period.
3. The City of Indianapolis does not consider the landfill of this sludge as an environmentally acceptable method of disposal.

A Hackment AZ

REID, QUEBE, ALLISON, WILCOX
& ASSOCIATES, INC.

CONSULTING ENGINEERS

ROBERT T. REID, President
WILLIAM F. QUEBE, P.E.
JOHN B. ALLISON, Jr., P.E.
ARTHUR T. WILCOX, P.E.
J. EDWARD DOYLE, P.E.

December 4, 1975

Mr. Robert Penno
Construction Grants Section
- Division of Water Pollution Control
Indiana State Board of Health
1330 West Michigan Street
Indianapolis, IN 46206

Re: Indianapolis AWT Project

Dear Bob:

Herewith, please find three (3) copies of the detailed Alternate Site Investigation. This has been conducted at the request of Mr. Robert C. Niles as specified in his November 10, 1975 letter to Reid, Quebe, Allison, Wilcox and Associates, Inc.

As can be seen, the total estimated cost to develop alternate site No. 4 (alternate site No. 4 is further defined in a previous addendum to the Facilities Plan) is \$24,482,187.24. This compares to a low bid for the Belmont Sitework of \$14,550,000.00. If soils conditions are worse than assumed, if drainage areas for bridge structures need to be larger than assumed, or if any assumption regarding the hydraulic profile or pumping is low, the estimate would be increased.

One item not considered in the attached evaluation is cost to the City if the landfill potential offered at the alternate site can not be utilized. This is a significant and direct cost to the City of Indianapolis and should be considered. Indianapolis now runs approximately 75 packer truck loads of garbage per day to the landfill. The trucks get between 0.6 and 0.8 miles per gallon and the truck has a 3-man crew; one driver and 2 packers. A study of the soils maps shows that it is possible to come up with a potential landfill site approximately 10 to 15 miles from the existing landfill. It should be noted that this land is not owned, it is not zoned, it is not in Marion County and upon close soils investigation may not be a suitable landfill. However, for the sake of this analysis, we can assume that another site could be found 10 to 15 miles from the current landfill site. Making these assumptions, the

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Mr. Robert Penno

December 4, 1975

City would be spending approximately \$5,992.50 more per day in manhour time and gasoline alone to the garbage to the next closest landfill site. The three-year present worth evaluation of this makes the total cost to the City for the loss of this potential landfill \$4,088,790.67. This cost has not been included in the detail evaluation that accompanies this letter. It is possible to see that the alternative site in question is definitely not cost effective based on direct cost to the site alone. However, one would be negligent not to consider the total cost to the City which must include a loss of the potential landfill.

The Indiana State Board of Health has determined that this evaluation must be submitted before Value Engineering can proceed. We request with this submission that Value Engineering proceed and that the State make formal reply to this alternate site evaluation and the Value Engineering scope of work as soon as possible.

If you have questions or comments regarding this alternate site evaluation please do not hesitate to contact me. Thank you for your consideration.

Very truly yours,

David B. Vornehm

DSV:clp

Enclosures

cc: Oral Hart
Sam Moore
Bob Niles
Chuck Orzhoskie
Wm. I. Spencer
Dr. R.F. Wukasch
William R. Lewis

ADDENDUM TO FACILITIES PLAN
DETAILED INVESTIGATION OF ALTERNATE SITE NO. 4

This alternate site investigation has been conducted at the request of Mr. Robert C. Niles in his November 10, 1975 letter to Reid, Quebe, Allison, Wilcox & Associates, Inc.. Mr. Niles and members of the Indiana State Board of Health staff have indicated that this alternate site investigation must be completed, submitted and accepted before contracts for the Belmont Project can be let, and before Value Engineering on the entire project can proceed. Therefore, for the sake of time, it became necessary to make a number of assumptions based on the best available data. The assumptions necessary for the alternate site investigation are:

1. Based on the United States Geological Survey, geographic map of the Indianapolis 1° x 2° quadrangle, Indiana and Illinois, showing bedrock and consolidated deposits, it was assumed that the soil characteristics at the alternate site are similar to the soils conditions at the Southport Site.
2. Assume that land associated with this alternate site can be obtained.
3. Once the flow reached the alternate site, the hydraulic profile will be similar to that previously developed for the Belmont Site.
4. The existing drainage ditch, Department of Natural Resources Docket No. G2833 must remain intact.
5. The levee along White River must conform to the levee currently approved by the Department of Natural Resources.
6. Based on the current water needs of the Indianapolis Power and Light Company, the effluent must discharge into White River above the IPALCO Dam.

It should be noted that such parameters as the exact clearance under the bridges for Eagle Creek and the drainage ditch on Docket No. G2833 can not be determined with complete accuracy without corresponding with the Department of Natural Resources formally, and allowing three to four weeks for their response. Exact soils data can not be obtained without a delay of from one to two months and a cost of approximately \$50,000.00. If soils problems were encountered the cost could be far greater than that estimated.

Several factors have changed since the preliminary alternate site investigation was performed in April. At that time the land associated with the alternate site was a potential landfill. Now it is an approved landfill site. In April, there was no definite levee approved by the Department of Natural Resources. There is now a levee approved by the Department of Natural Resources for that site. These two factors combine to greatly increase the cost of the land.

PAGE -2-
ADDENDUM TO FACILITIES PLAN
DETAILED INVESTIGATION OF ALTERNATE SITE NO. 4

Based on the assumption that the soil is similar to Southport an internal ditch system is required to relieve hydraulic pressures during times of high river flow, this combined with lower discharge elevations necessitates an effluent pump station which is not required for the Belmont Site.

Please note that the enclosed cost estimate is divided into two sections. One section includes costs that are directly comparable to the Sitework Package that went out for bids. The second section includes a list of comparison costs; that is, costs that have not been included in the site work bid package at this date but that will be included in future packages and will increase if an alternative site is chosen. These items must be considered in the total price of the alternate package.

The alignment of structures at the alternate site is such to allow the greatest possible portion of the new landfill site to remain so that Indianapolis will receive some benefit from that site. The north half of the alternate site was studied in detail. When the moat and levee were assigned their proper land area, the land remaining for processes was so small as to make the utilization of the north half of the alternate site unfeasible.

The hydraulic capacity of the effluent pump station at the alternate site was developed utilizing the same method as used to develop the Southport flow. Based on the EPA regulation requiring that the treatment plant function to the 25 year flood (rate of infiltration into the moat system of 91 mgd, a rain fall on the plant of 50 mgd and a wastewater flow of 150 mgd), the total flow the effluent pump station must be capable of handling is 291 mgd. It is somewhat less for the 100-year flood since wastewater does not need to be pumped: The effluent pump station would see 122 mgd filtration and 67 mgd of rainfall, or 189 mgd total for the 100-year flood.

All unit prices used in this analysis are based on Dodge Construction Digest, current bid experiences, or "Estimating Cost and Manpower Requirements for Conventional Wastewater Treatment Facilities" as published by the EPA.

March 30, 1976

INDIANAPOLIS AWT PROJECT
AD HOC COMMITTEE MEETING

Attachment B

Those attending:

EPA Region V: Thomas L. Smith, Charles Orzechoskie, Neil Denbo

Indiana State Board of Health: Steve W. Kim, Robert Penno, Christie
A Menzie

City of Indianapolis: David W. Hoppock, Ronald F. Wukasch, Wm. R. Lewis,
Richard L. Milan, Robert J. Smith, C. Michael Robson

Reid, Quebe, Allison, Wilcox and Associates, Inc., Wm. F. Quebe,
Ronald E. Riemer, David B. Vornehm

M.D. Wessler and Associates, Inc. Melvin D. Wessler

1. Mr. Hoppock opened the meeting by welcoming those attending. He briefly reviewed the background of the project with emphasis on the first bidding of the Belmont site preparation contract. He stressed the City's concern regarding the timing of the entire Project.
2. Mr. Quebe presented an overview of the Belmont Site Preparation Contract situation to date. He provided a detailed chronology of the preparation, bidding and rejection of the first bidding of the contract.
3. Mr. Riemer used a number of displays to illustrate his presentation on alternative methods for disposal of the sludge from the existing Belmont Plant sludge lagoons. His presentation included two alternative procedures for allowing off-site sludge disposal methods and one procedure for allowing only on-site sludge disposal methods. The three alternative methods were as follows:

Procedure 1: Allow both on-site and off-site sludge disposal methods but issue request for proposal (RFP) for alternative off-site disposal methods prior to bidding and "screen" methods of off-site disposal. This is the procedure used by the City of Philadelphia, which has not yet proceeded to construction. Mr. Riemer's presentation demonstrated that this procedure requires a good deal of time and will assuredly delay the award of contract past January 24, 1977 (This date is considered critical because it is the date on which the Belmont Sitework EPA Grant (C180747 02) will expire if the City is allowed one 6 month grant extension).

Procedure 2: Allow both on-site and off-site sludge disposal methods without RFP but providing greater than normal period of time between advertising for bids and opening bids to allow potential off-site sludge disposal contractors to obtain State approval of their disposal site or sites or at least provide the majority of data required for an Environmental Impact Assessment (EIA). It was demonstrated that if an off-site sludge disposal contractor is low bidder, the project using this method would extend past the January 24, 1977 date without award of contract.

Procedure 3: This procedure permits only on-site sludge disposal, however, the bid documents would be open to allow any on-site disposal method to be bid, but the following methods would include:

- (a) Chemical stabilization of sludge with disposal on the northerly portions of the plant site, or
- (b) Dewatering of the contents of sludge lagoons No. 1 through No. 18 and depositing the dewatered sludge "cake" in lagoons No. 11 through No. 18 thereby freeing Lagoons No. 1 through No. 10 for construction of the new Belmont facilities. An additional benefit of method (b) was that the new plant outfall could be built through lagoons 12 and 16 in the "dry" thereby reducing construction costs. It was demonstrated that this on-site procedure was the only one of the three presented which could possibly enable contract award by January 24, 1977.

The schedules on which Mr. Riemer based his remarks are provided as attachments to these minutes.

There was a general discussion of Procedure No. 1 and there was final agreement that although it had many attributes, the length of time required precluded it's application to this project. The agreement was unanimous and Procedure No. 1 was eliminated from further consideration.

4. The presentation of Mr. Riemer was reviewed at considerable length. The following comments or points were made during this review:

- (a) The significance of the January 24, 1977 date was considered. The importance of maintaining the current grant was reviewed:
- (b) Mr. T.L. Smith pointed out that:
 - (1) The Indianapolis Project is very important to Region V and due to possible delays to the overall Project Grants for the AWT Project, they did not look favorably to letting the existing Grant lapse and then having the City resubmit for another Grant for the same work.

- (2) There might be extenuating circumstances that would permit Region V to approve a second six month extension of Grant No. C180747 02. Neither Mr. Smith nor Mr. Denbo had knowledge of Region V ever previously having approved a second Grant extension. He recommended that the City proceed as fast as possible and the situation could be re-evaluated as the January 24, 1977 date drew closer.
 - (3) The significant act that the City had to perform by January 24, 1977 (assuming that a single six month Grant extension was approved) was to issue the approved contractor "A Notice to Proceed".
 - (4) If sludge is spread in more than one county, Public Hearings might have to be held in each county.
- (c) Mr. Orzechoskie pointed out that from his experience the periods allowed in Mr. Riemer's schedules for the EPA's preparing of Environmental Impact Statements (EIS) were too short. Although a "negative declaration" for land disposal would be best from the City's point of view, it might not be possible. A full EIS procedure would probably have to be initiated if a court action against land disposal occurred or if there was considerable public opposition evident during the public meetings (hearings) that the potential land disposal contractor would be required to hold.
- (d) Mr. Milan expressed pessimism that the land disposal method was viable. He recognized that at least one potential bidder (Organic Material Corporation) had already invested considerable time and effort in the preparation of a respectable EIA. However, Mr. Milan had been advised that there were at least 100 land owners from the vicinity of the proposed land disposal sites prepared to actively oppose the plan. Also, he had heard that there might be zoning problems to be overcome.
- (e) Mr. Riemer referred to the construction schedule for Procedures 2 and 3 and pointed out that in terms of overall Project construction that:
- (1) Allowing off-site sludge disposal alternatives would probably result in both plants commencing start-up on November 1, 1980 with completion of construction by June, 1981.
 - (2) Allowing only on-site sludge disposal, the City would save approximately six months with plants start-up by May 1, 1980, and end of construction by November 1, 1980.
 - (3) Any of the procedures would exceed the date established in the NPDES Permit.
- (f) Mr. Orzechoskie acknowledged that the off-site disposal was subject to delays due to citizen opposition to sludge disposal in their particular area. However, he pointed out that there were potential suits if land disposal was not included in the rebid documents when this method had been included in the first bid documents.

- (g) Mr. Milan stated that in contracts of the size contemplated in the AWT Project, law suits must be expected as a normal turn of events. Therefore, the documents require extra care to prepare for the almost inevitable challenge in the courts.
- (h) T.L. Smith asked for a review of why the problem of off-site sludge had arisen in the first place. Wm. Quebe, Ron Riemer and Ron Wukasch responded that Carl Fox of the Indiana State Board of Health had requested the allowance of alternate bids based on an evaluation by Mr. Pinnick of the Environmental Protection Agency that the proposed City Bid Documents were too "closed" in terms of sludge disposal methods. The bid documents were "opened up" to alternate methods and the first bid was on this basis.
- (i) Steve Kim responded to a question on preparing bid documents for off-site land disposal. He stated that the State has reviewed three successive EPA draft regulations for land disposal of sludge. The State, in conjunction with recommendations from the Purdue University, Agronomy Department has issued "Interim Guidelines for Municipal Sludge Disposal on Land". These guidelines are patterned after the EPA's third draft guidelines. He cautioned, however, that subsequent regulations by EPA might supercede the State Interim Guidelines. He agreed that this could occur during the bidding and contract award process of the Belmont Sitework Project. Dr. Kim was asked if contractors would be able to approach the Indiana State Board of Health and obtain the regulations for sludge disposal. He said they would.
- (j) R.E. Riemer described the chemical sludge fixation ("Chemfix", "Tricil") alternative. He pointed out that the rebid documents would reflect R.Q.A.W.'s review of a recent letter from the Indiana State Board of Health regarding the chemical fixation alternative. Greater attention is being paid to clay lining of the disposal area as well as leachate collection and return to the liquid stream process.
- (k) Dr. Kim said that the State had originally gone along with the chemical fixation alternative based on chemical fixation information submitted to them. Subsequently, they had had an opportunity to perform their own analyses and found leachate pH in the range of 12.0 which they felt was too high. That was why they had recommended changes to the chemical fixation method for the rebid.
- (l) Mrs. Menzie reviewed the point of whether the chemically fixed or dewatered sludge disposal alternatives came under her jurisdiction in terms of solid waste disposal. She stated that her section had not formally received a copy of plans and specifications to review. However, she felt that the specifications needed clarification, particularly in the area of disposal of ash and scum. It should be stated that these materials are only to be disposed of in "Special Purpose Landfills".

(m) Mr. Riemer presented the following cost estimate summaries for the Sitework based on three sludge disposal alternatives:

- (1) Disposal on Agricultural Land \$15,233,400.00
- (2) Chemical Fixation for On-Site Disposal \$19,656,300.00
- (3) Sludge Dewatering for On-Site Disposal \$13,243,500.00

These estimates were based on information obtained from contractors who bid the original Belmont Sitework in October, 1975.

(n) T.L. Smith indicated that there should be concurrent submittal of documents to the Environmental Protection Agency and the Indiana State Board of Health.

5. It was agreed, by those attending, that the City's next move was to get a ruling from EPA on:

- (a) Whether off-site sludge disposal must be included as an acceptable method for re-bid of the Project.
- (b) Whether the City can expect a single six month extension of Grant C180747 02 to January 24, 1977 to accommodate any of the procedures presented.
- (c) Whether the City could expect a second six month extension of the Grant to July 24, 1977 if the low bidder proposed off-site land disposal and the concept became delayed due to litigation beyond the control of the City.
- (d) Whether the City should let the Grant lapse and resubmit an application on the basis of contract documents including off-site land disposal.

It was agreed that the City should formally document the information presented at the Ad-Hoc Meeting in the form of a letter with attachments and forward it to Mr. Smith of the Environmental Protection Agency as soon as possible. The City would be prepared to make a presentation to the Region V staff in Chicago, but would await Mr. Smith's advise on this.

Preparation of bid documents will continue on the basis of on-site disposal of chemical fixation sludge and on-site disposal of dewatered sludge.

6. Mr. Neil Denbo of the Environmental Protection Agency discussed several new requirements which the City must satisfy to:

- (a) Have grants approved,
- (b) Receive any reimbursements

These requirements are based on new regulations published in the Federal Register of December 7, 1975 and March 4, 1976. Mr. Denbo provided the City with six copies of a form which must be filled out and returned immediately to ensure speedy approval and reimbursement of funds for the City's current Step 2 effort (Grant No's. C180747 03 and C180865 02).

7. Mr. Robson reported on the current status of the Value Engineering Management (VE) work. The information he presented included:

- (a) The VE Consultants, Consoer-Townsend and Associates in association with Zurheide-Hermann, Inc. had started work on the basis of the City's receiving a "prior approval" letter, dated March 15, 1976, from Mr. Todd Cayer of the Environmental Protection Agency.
- (b) An initial meeting was held in Indianapolis on March 23, 1976 attended by representatives of the City, the State, and the City's design consultant's, Reid, Quebe, Allison, Wilcox and Associates, Inc. The Environmental Protection Agency representation had been requested through Mr. Denbo but they had been unable to attend.
- (c) The VE Consultants had provided a preliminary work schedule of the March 23, 1976 meeting but it had been agreed at that time that the VE Consultant would require additional time to finalize their work plan and "firm-up" the schedule so all parties concerned could be accommodated.
- (d) Mr. Shifrin, the Project Manager for the VE Consultant, had contacted Mr. Robson on the evening of March 25 regarding the scheduling of the two first steps of the Work Schedule which are as follows:
 - (1) The Initial Site Visit (to be held in Indianapolis) is scheduled for April 1 and 2, 1976. The work to be performed is as follows:
 - i. Overall project briefing by Engineer (R.Q.A.W.)
 - ii. Site visits and briefings by City personnel
 - iii. Review of available data and request for other information
 - (1) VE Team Briefing (to be held in Chicago or St. Louis) is scheduled for the week of April 19, 1976 and is currently intended to include the Consoer-Townsend/Zurheide-Hermann VE Team, Reid, Quebe, Allison, Wilcox and the City's Project Director. The work to be performed includes the following:
 - i. Scope of work
 - ii. Process description for both plants
 - iii. Review of VE team qualifications
 - iv. Discussion of work plan and schedule

Mr. Robson stated that a firm work plan and schedule should be available shortly after April 23, 1976. Mr. Penno requested that provision be made early in the schedule for the Indiana State Board of Health to make a brief presentation on the State's area of concern with respect to the cost effectiveness of portions of the project. Mr. Robson agreed to attempt to have it scheduled for either the "Initial Site Visit" or the "VE Team Briefing".

Mr. Denbo pointed out that the Environmental Protection Agency wished to have five observers present at the "workshop" portion of the VE Study. Mr. Smith would serve as the clearinghouse of information of the City's VE activities for transmission to the appropriate Environmental Protection Agency personnel. Mr. Denbo has provided the City with a draft copy of the Environmental Protection Agency's Procedural Handbook for Value Engineering. The City has distributed this to the State as well as to the City's VE and Design Consultants.

8. Mr. Hoppock closed the meeting by thanking those attending for their constructive approach to the City's problems on the Project. He confirmed the City's intent to make all practicable effort to expedite the Project.

C. Michael Robson

CMR:clp

Attachments (3 sheets)

cc: All Attendees
Walt Shifrin, Consoer-Townsend

SCHEDULE OF PROCEDURE 1

OFF-SITE ALTERNATIVES ALLOWED - RFP METHOD

	<u>1976</u>
1. Plans and Specs Complete	April 15
2. ISBH & EPA Approve Plans and Specs	June 15
3. Proposals Received	September 15
4. Select Allowable Proposals	November 1
	<u>1977</u>
5. Open Bids	January 1
6. End Public Hearings	April 1
7. ISPCB Approve Method and Site	May 1
8. EIS Complete	October 1
9. Approve Bid Documents	November 1
10. Obtain Permits, Award Contract	December 1
11. Start Construction	December 15
	<u>1978</u>
12. Advertise Remaining Facilities	January 1
13. Award for Remaining Facilities	July 15
14. End Sitework	December 15
	<u>1979</u>
15. Start Facilities Construction	January 1
	<u>1981</u>
16. Start-up Plant	April 1
17. End Construction	November 1

SCHEDULE OF PROCEDURE 2

OFF-SITE ALTERNATIVES ALLOWED - DIRECT BID

	<u>1976</u>
1. Plans and Specs Complete	April 15
2. Approve Plans and Specs	June 15
3. Open Proposals and Bids	September 1
4. Start Public Hearings	September 15
5. End Public Hearings	November 15
	<u>1977</u>
6. ISPCB Approve Method and Site	January 1
7. Complete EIS	May 1
8. Approve Bid Document	June 1
9. Obtain Permits, Award Contract	July 1
10. Start Sitework Construction	July 15
11. Advertise Remaining Facilities	August 1
	<u>1978</u>
12. Awards for Remaining Facilities	February 1
13. End Sitework	July 15
14. Start Facilities Construction	August 1
	<u>1980</u>
15. Start-up of Plant	November 1
	<u>1981</u>
16. End Construction	June 1

SCHEDULE OF PROCEDURE 3

ON-SITE ALTERNATIVES ONLY

	<u>1976</u>
1. Plans and Specs Complete	April 15
2. Approve Plans and Specs	June 15
3. Open Bids	September 1
4. ISPCB Approve Method	November 1
5. Approve Bid Documents	December 1
6. Award Contract	December 15
	<u>1977</u>
7. Start Construction	January 1
8. Advertise Remaining Facilities	March 1
9. Open Bids for Facilities	June 1
10. Awards for Remaining Facilities	October 1
	<u>1978</u>
11. End Sitework	January 1
12. Start Facilities Construction	February 1
	<u>1980</u>
13. Start-up Plant	May 1
14. End Construction	November 1

SECTION 02242

SLUDGE, CONTAMINATED MATERIALS, NON-CONTAMINATED SOILS
GREASE AND ASH DISPOSAL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work under this section includes but is not limited to the following:
1. Treatment and disposal of sludge, contaminated soils, non-contaminated soils, grease and ash.
- B. Related work specified elsewhere includes but is not limited to the following:
1. Sitework - Section 02000
 2. Excavation, Trenching and Backfilling - Section 02221
 3. Mass Excavation and Engineered Fill - Section 02222
 4. Bentonite Clay Lining - Section 02244
 5. 120" Effluent Pipe - Section 15063

1.02 DEFINITIONS OF MATERIALS

- A. Sludge - Dark organic and inorganic material in combination with water located in Lagoons No. 1 through 18, excluding the ash in Lagoons No. 1 and 2.
- B. Grease - A group of substances including fats, waxes, free fatty acids, calcium and magnesium soaps, mineral oils, and certain other nonfatty materials located in the grease pit shown.
- C. Contaminated Soil - The eighteen (18) inches of soil immediately adjacent to and in contact with the sludge in the bottom and sides of a sludge lagoon and any soils that by visual inspection of the Project Engineer are seen to be mixed with grit, grease, sludge, or other organic wastes.
- D. Unsuitable Soils include, but are not limited to, the following:
1. All soil containing more than five (5) percent organic matter by weight.
 2. All soil containing rubble, debris, wood, paper, metal, grease, or other man-made objects.

3. Any granular soil material with a relative density less than 70 percent.
 4. Any cohesive soil with shear strength and compressibility characteristics which will result in either bearing capacity failure or excessive settlement of foundations when used for fill or sub-grade for the proposed facilities.
- E. Ash - The residue left from the products of combustion resulting from the incineration of sludge. The ash is located in Lagoons No. 1 and No. 2.
- F. Non-contaminated Soil - Any soil other than soil defined as contaminated soil herein.

1.03 GENERAL REQUIREMENTS FOR ALL WORK UNDER THIS SECTION

- A. Contractor shall plug and abandon or remove all overflows and drains from existing lagoons as shown.
- B. Contractor shall install drains, sewers and inlets necessary to collect all runoff and leachate from all disposal areas constructed at the Belmont Wastewater Treatment Plant and as shown.
- C. All disposal areas constructed at the Belmont Wastewater Treatment Plant except for ash and non-contaminated soil disposal sites, shall be sloped and drained during construction and all runoff collected and disposed of at the Belmont Wastewater Treatment Plant. Contractor shall provide all piping and equipment necessary to transport all such run-off during construction. The run-off shall be transported to the wastewater treatment plant as directed by the Project Engineer. All runoff and drainage collected and transported to the wastewater treatment plant, with the exception of the filtrate from Option No. 2, will be treated without additional charge to the Contractor.
- D. Methods of disposal and transportation of all materials shall have the approval or concurrence of all agencies having jurisdiction.
- E. Contractor shall prevent any sludge, contaminated material or leachate from entering or spilling into any body of water, any aquifer, or onto any lawn or pavement, and shall maintain the integrity of all adjacent sludge lagoons that are not being emptied.
- F. "Approved Landfills" shall be defined as landfill sites that have the written approval of all agencies having jurisdiction for the disposal of the specific material proposed to be disposed of therein.

- G. The Contractor shall provide within forty-five (45) consecutive calendar days after Tentative Award of the Contract, a release from each landowner, tenant and any other party having an interest in said land or crops of said land, where an offsite disposal area is to be located in the following form; subject to such additions as may be approved by the Owner to explain the use of the sludge or waste material, and which will not impair the legal effects of the release:

RELEASE

The undersigned (party) (parties)* having an interest, as indicated below, in property, or crops on said property, upon which sludge or waste materials removed from the Belmont Treatment Plant of the City of Indianapolis is to be (applied), (stored) (or disposed of)*, acknowledge(s) that results of testing of the material being (stored), (applied) (or disposed of)* made by _____

(Name of Testing Entity)

have been made available to them, but that it is impossible to know the exact contents of all of the material or the possible effects of the material and its contents upon land, personal property, crops, animals or human beings.

In consideration of being permitted to (purchase) (or acquire)* said sludge or waste materials from _____, the

(Name of Contractor or Subcontractor)

undersigned (does) (do)* hereby release the City of Indianapolis, its Project Engineer, the Project Engineer's Consultants, and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the (storage) (application of) (or disposal)* of such materials.

Signatures _____

Interest in Property and/or Crops

*Strike inapplicable words.

- H. Disposal sites, except those for ash and non-contaminated soils, constructed on the site of the Belmont Wastewater Treatment Plant shall have bentonite clay liners installed as specified in Section 02244 and sloped to drain to points shown and specified.

- I. Where ash is disposed of at the Belmont North Disposal Site no bentonite clay liner will be required. The ash shall be covered with one foot of soil suitable for growing grass, mulched seeded and sloped to drain to the southeast of the site. The Contractor shall control erosion of the covered area until the grass cover is established. Contractor shall maintain the area until time of acceptance by the Owner. Ditches and storm sewers shall be constructed to handle run-off equal to a two-year one-hour storm intensity of 1.25 inches. The storm sewer shall cross under the road and drain to approximate coordinates 5344N/2264E. Contractor shall submit plans, including calculations to the Project Engineer for review. These plans shall include grading and drainage system plans and shall be prepared by and under the seal of a professional engineer registered in the State of Indiana.
- J. All ash disposed of off-site shall be disposed of in a landfill approved for this material and conforming to the requirements of paragraph 1.02F. above.
- K. Non-contaminated soil may be used, if suitable, for fill materials in the Work. Portions of such materials that are unsuitable for fill or in excess of that needed for fill shall be deposited on-site in areas directed by the Project Engineer.
- L. The Contractor's attention is called to the fact that the Belmont North Disposal Site referred to in these Contract Documents is on top of a previously covered garbage landfill. No borrow material shall be obtained from and no excavation shall be performed in this area except for the excavation required for the construction of the drainage facilities.
- M. Contaminated materials as defined may be found within the Central Site Limits and within the South Disposal Site limits shown and at the interface of the ash or sludge and the bottoms of Lagoons No. 1 through No. 18 as well as the interface of the grease and the bottom of the grease pit.
- N. Materials removed from Lagoons 11 through 18 may be returned to these same lagoons after these lagoons have been lined as specified herein.
- O. All grease and sludge, ash, and contaminated materials not disposed of on site shall be disposed of only at "approved" landfills.
- P. Any disposal or treatment process that results in liquids that are transported to the Wastewater Treatment Plant will be tested at the Owner's user charge in effect at the time of construction. Such liquids shall contain no chemicals detrimental to the effluent quality of the Wastewater Treatment Plant. The daily average suspended solids concentration in such liquids shall be 2,000 mg/l or less and at no time shall such liquids contain more than 3,000 mg/l suspended solids. The maximum quantity of solids directed to the Owner's aeration tanks shall not exceed two (2) tons of dry solids per day.

- Q. Contractor shall execute the mixing, removal, transport, and treatment of all sludge in a manner to minimize the release of odors into the atmosphere. Contractor shall also conduct all work relative to the mixing, removal, transportation and treatment of the sludge in conformance with the requirements of all agencies having jurisdiction. Contractor shall be responsible for providing all necessary scrubbing, filtering, masking, or other methods of odor control required in the prosecution of his work by the foregoing agencies. In the event the air pollution requirements of all agencies having jurisdiction are not met, all work affected by said regulations shall be halted immediately and necessary action shall be taken to cause such work to conform to said requirements prior to re-commencing such operations.
- R. All sludge and contaminated materials removed from the Work Site shall become the property of and the sole responsibility of the Contractor.
- S. Owner will only make Progress Payments for sludge and materials finally disposed of. Progress Payments shall meet the requirements of Section 01370, Schedule of Values. The Owner will not pay disposal costs of sludge or materials temporarily lagooned or stored.

PART 2 - MATERIAL DISPOSAL OPTIONS

2.01. Option No. 1 - Chemical Fixation Processes

- A. Chemical Fixation is one on-site method for the disposal of the sludges removed from lagoons 1 through 10 at the Belmont Wastewater Treatment Plant No. 1.
- B. If chemical fixation is used, the sludge shall be disposed of at the Belmont North Disposal Site. Ash and grease removed shall be disposed of off-site in a approved landfill for such materials.
- C. Sludge, ash and grease from lagoons 1 through 10 shall be removed and treated as required in this article. The sludge from lagoons 12 and 16 shall also be removed to allow construction of the 120" Effluent Line. This sludge may be temporarily stored in any lagoon that has been emptied for construction. After the construction and sealing of this line, and the construction of the bentonite/clay liner in lagoons 12 and 16, such sludge may be replaced in lagoons 12 and 16.
- D. The Belmont North Disposal Site shall be prepared for the installation of the chemically fixed sludge by sloping the bottom to allow drainage to the southeast corner of the disposal site at approximate coordinates 5750N/2350E. A bentonite/clay liner as specified in Section 02244 shall then be installed as specified and a system of leachate underdrains and other facilities, as necessary, shall be installed immediately above the bentonite/clay liner and piped under the road as shown to an existing manhole at

approximate coordinates 5280N/2314E. After the chemically fixed sludge has been placed in the area with maximum slopes of 3:1, one foot of clay and six inches of soil suitable for grass cover, shall be installed on top of the chemically fixed sludge. The surface shall be sloped to drain to the southeast corner of the disposal site and necessary catch basins and storm sewers constructed to connect to a storm sewer that shall be installed under the road in order to drain the surface of the North Disposal Site to the area at approximate coordinates 5344W/2264E. The soil shall then be mulched seeded as specified. Contractor shall control all erosion and maintain seeded areas until acceptance by the Owner. Contractor, before placing any chemically fixed sludge on the Belmont North Disposal Site shall submit grading plans, drainage plans, subsurface drainage plans, leachate control scheme and all calculations to the Project Engineer and the Indiana State Board of Health for review. These plans shall be prepared by and under the seal of a professional engineer registered in the State of Indiana. A two year - 1 hour storm intensity of 1.25 inches shall be used in calculations for the surface runoff.

E. Chemical fixation, if used, shall be accomplished by processes, methods and equipment capable of producing a product that has mechanical properties suitable for landfill on top of ground surfaces, capable of being contoured and capable of supporting a bearing pressure of 1,000 PSF. The processed sludge shall also possess leachate properties defined as follows:

1. The chemical characteristics of the leachate listed as maximum levels in milligrams per liter (mg/L) shall be as follows: Cadmium (Cd) 1 mg/l or less. Total chromium (Cr) 1 mg/l or less. Lead (Pb) 1 mg/l or less. Mercury (Hg) 0.1 mg/l or less. Nickel (Ni) 1 mg/l or less. Zinc (Zn) 1 mg/l or less. Copper (Cu) 1 mg/l or less.
2. The chemical characteristics of the leachate shall be determined by standard leachate tests which shall be conducted in the following manner:
 - a. One hundred (100) grams of the material to be leached shall be placed in a forty by six-hundred (40 x 600) millimeter chromatography column containing one inch of glass wool at the bottom interface.
 - b. The material to be leached shall then be compacted in the column.
 - c. Distilled water shall be used as the diluent. The remaining volume of the column above the material to be leached shall be filled with distilled water.

- d. Diluent water shall be allowed to seep through the material at a rate of approximately one (1) cubic centimeter of water per minute. The diluent water which seeps through the material is called the "leachate" and shall be collected.
- e. The leachate shall be collected in one-hundred (100) cubic centimeter portions.
- f. Leachate portions or various composite portions shall be analyzed by Atomic Absorption, Spectrographic, Colorimetric or wet methods (as required) to determine the concentration of any constituents which were leached from the material under analysis. Results shall be reported in milligrams per liter.

3. Volume increase of the sludge after chemical fixation shall be limited to a maximum of 10 percent.

F. Timing of the Work to be performed under these Contract Documents is critical to the completion of the Advanced Wastewater Treatment Project at the Belmont Wastewater Treatment Plant No. 1. Obtaining the required approvals or concurrences to dispose of the sludge or other materials as proposed may be delayed by the nature of the remonstrance and other response to the hearing(s), if any, as well as by other unforeseen legal or technical considerations. If delays in obtaining the necessary approvals or concurrences for the proposed disposal method for the sludge or other material extend later than ninety (90) consecutive calendar days from the Tentative Award of the Contract, the Owner may deem the bid non-responsive and award the Contract to another bidder.

G. Contractor using this option shall provide, at Project Close-out, Certificates of Insurance that will provide \$10,000,000 Excess Indemnity Limits covering the following for a period of two (2) years after Project Close-out:

- 1. Stability of chemically fixed sludge.
- 2. All off-site disposal of materials.
- 3. All off-site stored materials.
- 4. All off-site transportation and operations.

2.02 OPTION NO. 2 - CHEMICAL CONDITIONING, DEWATERING AND ON-SITE DISPOSAL

A. Chemical conditioning and dewatering of the sludges in lagoons 1 through 18 and then storing the dewatered sludge in lagoons 11 through 18 is another method of removing the sludge

from lagoons 1 through 10. If this method is used, the resulting dry cake, after dewatering, shall have a minimum of 25% solids by weight and shall have a volume no greater than one-half the sludge's original volume.

- B. The filtrate resulting from the dewatering operation shall be transported to the influent channel of the aeration tanks of the Belmont Wastewater Treatment Plant. The Contractor shall use no chemicals in his dewatering process that will result in a filtrate chemical content that will cause deterioration of the effluent quality of the wastewater treatment plant. The Owner will treat the filtrate at the Owner's user charge in effect at the time of construction. The Contractor shall provide all necessary piping and equipment required to transport the filtrate to the inlet of the aeration tanks as directed by the Project Engineer. The daily average suspended solids concentration in the filtrate shall be 2,000 milligrams per liter or less and at no time shall the filtrate contain more than 3,000 milligrams per liter suspended solids. The maximum quantity of solids directed to the Owner's aeration tanks shall not exceed two (2) tons of dry solids per day. The Contractor shall collect samples of the filtrate at the point where the filtrate enters the treatment plant and shall provide total suspended solids data on such samples to the Project Engineer. One sample shall be taken every four hours, or fraction thereof, of operation of the dewatering equipment and composited with other samples taken during each shift. A total suspended solids analysis shall be conducted on the composited sample from each shift by a laboratory approved by the Owner and according to "Standard Methods for the Examination of Water and Wastewater" (APHA, AWWA, and WPCF). This data shall be provided the Project Engineer on a weekly basis, and shall be available for inspection upon request of the Project Engineer.
- C. If the chemical conditioning, dewatering and on-site disposal method is used, lagoons 11 through 18 shall be lined with a bentonite/clay liner as specified in Section 02244 and as much as possible of the dewatered sludge placed in these lagoons. All of the ash shall be disposed of at the Belmont North Disposal Site as specified in paragraph 1.02I above or at an approved landfill. The grease shall be disposed of off-site in an approved landfill. Contaminated materials shall be disposed of in Lagoons No. 11 through 18 at the Belmont Wastewater Treatment Plant if sufficient volume is available after deposition of the chemically conditioned, dewatered sludge.
- D. Excess sludge, ash, grease or other contaminated materials shall be disposed of only at "approved" landfills.
- E. Timing of the Work to be performed under these Contract Documents is critical to the completion of the Advanced Wastewater Treatment Project at the Belmont Wastewater Treatment Plant No. 1. Obtaining the required approvals or concurrences to dispose of the sludge

or other materials as proposed may be delayed by the nature of the remonstrance and other response to the hearing(s), if any, as well as by other unforeseen legal or technical considerations. If delays in obtaining the necessary approvals or concurrences for the proposed disposal method for the sludge or other materials extend later than ninety (90) consecutive calendar days from the Tentative Award of the Contract, the Owner may deem the bid non-responsive and award the Contract to another bidder.

- F. The Contractor using this option shall provide, at Project Close-out, Certificates of Insurance that will provide \$10,000,000 Excess Indemnity Limits covering the following for a period of two (2) years after Project Close-out:

1. All off-site disposal of materials.
2. All off-site stored materials.
3. All off-site transportation and operation.

2.03 OPTION NO. 3 - LAND APPLICATION

- A. This method offers the option of off-site transportation and disposal of the sludge using land application.
- B. All of the information required from the Bidder for obtaining approval or concurrence of this method of sludge disposal from all agencies having jurisdiction with the exception of the public hearing response, if any, shall be submitted with the bid. This information shall be prepared by and under the seal of a professional engineer registered in the State of Indiana and the state of the disposal site if other than Indiana and submitted in the appropriate format to the appropriate agencies having jurisdiction, and the Owner. Bidder shall also provide with his bid a letter signed by an individual having authority to do so (in conformance with paragraph 1.02 of the Instructions to Bidders), warranting that he has procured the adequate land area required for the sludge disposal and sludge storage methods that he proposes using for his method of disposal. The Owner will deem the bid of any bidder who fails to provide this letter as non-responsive.
- C. The public hearing(s), if required, for the land application method shall be postponed until after a bidder proposing such a disposal method receives Tentative Award of the Contract. The hearing(s) shall then be held, if required, and all the information obtained from this hearing(s), including the transcript and all remonstrance and other responses, shall be submitted to the Owner and the agencies having jurisdiction (five 5 copies each) within forty-five (45) days after the date of the Tentative Award. The transcripts shall be prepared and certified by a qualified Court Reporter approved by the Owner. All remonstrance

or other responses shall be reported to the Owner in writing during the ten (10) consecutive calendar day period following the date of the hearing(s). All remonstrances shall be forwarded in their entirety, if in writing, and thoroughly reported in writing if verbal. All hearing(s), if required, shall be held by the Contractor for the Owner and such hearing(s) shall comply with all requirements of all agencies having jurisdiction. The costs of holding the hearing(s), and the preparation of transcripts and submittals associated with such hearing(s) shall be borne by the Contractor.

- D. If all required documentation is not provided the Owner within ten (10) consecutive calendar days following the public hearing(s), the Owner will deem the bid nonresponsive and award the Contract to another bidder.
- E. Timing of the Work to be performed under these Contract Documents is critical to the completion of the Advanced Wastewater Treatment Project at the Belmont Wastewater Treatment Plant No. 1. Obtaining the required approvals or concurrences to dispose of the sludge or other materials as proposed may be delayed by the nature of the remonstrance and other response to the hearing(s), if any, as well as by other unforeseen legal or technical considerations. If delays in obtaining the necessary approvals or concurrences for the proposed disposal method for the sludge or other materials extend later than forty-five (45) consecutive calendar days from the time of the Owner's submission of the required documentation to the agencies having jurisdiction, the Owner may deem the bid non-responsive and award the Contract to another bidder.
- F. The Owner has not conducted the sampling, testing, and analysis, required to prove the viability and safety of any type of off-site sludge disposal method. The Contractor shall provide all sampling, testing, and analysis, required to prove the viability and safety of the sludge disposal techniques that he proposes.
- G. All sludges shall be disposed of in accordance with the requirements of this Article. All ash shall be disposed of at the Belmont North Site, as specified, or in an approved landfill. All grease shall be disposed of in an approved landfill.
- H. If Option 3 is selected by the Owner and the Notice of Tentative Award is received by the Bidder, the Bidder shall assist the Owner in consulting with and obtaining approval or concurrence from the appropriate agencies having jurisdiction and with the Owner on the wording of the announcement of Public Hearing(s), location of the Public Hearing and the requirements for publication and advertising the Hearing(s).

- I. The Contractor using this option shall provide, at Project Close-out, Certificates of Insurance that will provide \$10,000,000 Excess Indemnity Limits covering the following for a period of two (2) years after Project Close-out:

1. All off-site disposal of materials.
2. All off-site stored materials.
3. All off-site transportation and operations.

2.04

OPTION 4 - OTHER DISPOSAL TECHNIQUES

- A. This method offers the option of off-site transportation and disposal of the sludge using another environmentally acceptable method the Bidder proposes.
- B. All of the information required from the Bidder for obtaining approval of the proposed method of sludge disposal from all agencies having jurisdiction with the exception of the public hearing response, if any, shall be submitted with the bid. This information shall be prepared by and under the seal of a professional engineer registered in the State of Indiana and the state of the disposal site if other than Indiana and submitted in the appropriate format to the appropriate agencies having jurisdiction, and the Owner. Bidder shall also provide with his bid a letter signed by an individual having authority to do so (in conformance with paragraph 1.02 of the Instructions to Bidders), warranting that he has procured the adequate land area required for the sludge disposal and sludge storage methods that he proposes using for his method of disposal. The Owner will deem the bid of any bidder who fails to provide this letter as non-responsive.
- C. The public hearing(s), if required, for the proposed off-site disposal method shall be postponed until after a bidder proposing such a disposal method receives Tentative Award of the Contract. The hearing(s) shall then be held, if required, and all the information obtained from this hearing(s), including the transcript and all remonstrance and other responses, shall be submitted to the Owner and the agencies having jurisdiction (five (5) copies each) within forty-five (45) days after the date of the Tentative Award. The transcripts shall be prepared and certified by a qualified Court Reporter approved by the Owner. All remonstrance or other responses shall be reported to the Owner in writing during the ten (10) consecutive calendar day period following the date of the hearing(s). All remonstrances shall be forwarded in their entirety, if in writing, and thoroughly reported in writing if verbal. All hearing(s), if required, shall be held by the Contractor for the Owner and such hearing(s) shall comply with all requirements of all agencies having jurisdiction. The costs of holding the hearing(s), and the preparation of transcripts and submittals associated with such hearing(s) shall be borne by the Contractor.

- D. If all required documentation is not provided the Owner within ten (10) consecutive calendar days following the public hearing(s), the Owner will deem the bid nonresponsive and award the Contract to another bidder.
- E. Timing of the Work to be performed under these Contract Documents is critical to the completion of the Advanced Wastewater Treatment Project at the Belmont Wastewater Treatment Plant No. 1. Obtaining the required approvals or concurrences to dispose of the sludge or other materials as proposed may be delayed by the nature of the remonstrance and other response to the hearing(s), if any, as well as by other unforeseen legal or technical considerations. If delays in obtaining the necessary approvals or concurrences for the proposed disposal method for the sludge or other materials extend later than forty-five (45) consecutive calendar days from the time of the Owner's submission of the required documentation to the agencies having jurisdiction, the Owner may deem the bid non-responsive and award the Contract to another bidder.
- F. The Owner has not conducted the sampling, testing, and analysis, required to prove the viability and safety of any type of off-site sludge disposal method. The Contractor shall provide all sampling, testing, and analysis, required to prove the viability and safety of the sludge disposal techniques that he proposes.
- G. All sludges shall be disposed of in accordance with the requirements of this Article. All ash shall be disposed of at the Belmont North Site, as specified, or in an approved landfill. All grease shall be disposed of in an approved landfill.
- H. If Option 4 is selected by the Owner and the Notice of Tentative Award is received by the Bidder, the Bidder shall assist the Owner in consulting with and obtaining approval or concurrence from the appropriate agencies having jurisdiction and with the Owner on the wording of the announcement of Public Hearing(s), location of the Public Hearing and the requirements for publication and advertising the Hearing(s).
- I. The Contractor using this option shall provide, at Project Close-out, Certificates of Insurance that will provide \$10,000,000 Excess Indemnity Limits covering the following for a period of two (2) years after Project Close-out:
1. All off-site disposal of materials.
 2. All off-site stored materials.
 3. All off-site transportation and operations.

END OF SECTION

REID, QUEBE, ALLISON, WILCOX
& ASSOCIATES, INC.

CONSULTING ENGINEERS

ROBERT T. REID, President
WILLIAM F. QUEBE P.E.
JOHN B. ALLISON Jr. P.E.
ARTHUR T. WILCOX P.E.
J. EDWARD DOYLE P.E.

March 14, 1978

Attachment D

Mr. Charles Frasher
Planning Branch
Region V
USEPA
230 South Dearborn
Chicago, IL 60604

Re: Construction Grant No. C180747 02

Dear Mr. Frasher:

Based on our conversation of February 21, 1978, it is our understanding that the Environmental Protection Agency does not believe it is necessary for Indianapolis to obtain their written approval prior to transportation of sludge, grease or other hazardous wastes to areas certified by the Indiana State Board of Health for their disposal. If our understanding is in error, or you wish to further clarify this issue, please contact us or Mr. C. Michael Robson of the Indianapolis Department of Public Works.

Very truly yours,

David B. Vernehl

DEV/kms

cc: C. Michael Robson, DPW
Neil Denbo, USEPA
Robert Penno, ISBH
Ron Riemer, DPW

326/39A

CHARACTERIZATION OF SLUDGE

The sludge in the Belmont Wastewater Treatment Plant Lagoons 1 through 10 is characteristically a well digested sludge. Composite representative samples of the sludge in the lagoons were obtained during the month of February, 1977, under the direction of the Environmental Protection Agency and were analyzed by the Environmental Protection Agency Laboratories.

A representative sample of the grease pit was obtained and was sent to the U.S. Coast and Geological Survey Central Laboratory, Denver, Colorado in August, 1976.

The results of the analyses are contained as attachments to Attachment H to this report along with a summary table listing the results of the analysis of the lagoons.

BAKER & DANIELS

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April 11, 1979

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3901 Industrial Boulevard
Indianapolis, Indiana 46254

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1874-1942

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JOHN D. COCHRAN
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CHARLES L. WHISTLER
EARL CLAY ULEN, JR.
RICHARD E. AIDMAN
J. B. KING
STEPHEN W. TERRY, JR.
THOMAS M. LOFTON
JOSEPH B. CARNEY
DANIEL E. JOHNSON
ROBERT L. JESSUP
VIRGIL L. BEELER
WILLIAM F. LANDERS, JR.
ROBERT N. DAVIES
RICHARD M. LEAONE
THEODORE E. BOEHM
MICHAEL E. MALNE
PETER C. WARD
NORMAN F. BOWE
TERRELL D. ALBRIGHT
WILSON S. STOBBER
FRED E. SCHULROEL
JAMES A. ARCHULEMAN
JERRY R. JENKINS
STEPHEN A. CLAFFEY
PETER D. SCHELLIE
NORMAN O. TABLE, JR.
BOBY O'BRYAN
STEPHEN H. PAUL

EDWARD DANIELS
1877-1948

Attachment F

CHARLES T. RICHARDSON
MICHAEL J. HUSTON
LEWIS D. BECKWITH
DONALD P. BENNETT
THOMAS G. STAYTON
JOHN D. GARDNER
JOE C. EMERSON
CHARLES A. HESSLER
JAMES M. CARR
JAMES H. HAM III
MARY K. LISHER
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ROBERT W. ELZER
JOHN W. PURCELL
THOMAS A. VOGTNER
DAVID C. WORRELL
THEODORE J. ESPINO
MARK B. BARNES
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RALPH F. HALL
JOHN H. LEAHY
JOHN E. POLLEY
JOHN B. BRIDGE
BRIAN K. BURKE
THEODORE W. BROWNE II
ROBERT P. CHAMNESS
STEVEN L. HOUSEHOLDER
J. DANIEL OOREN

PAUL N. ROWE
OF COUNSEL

Re: State Approved Disposal of Sludge
From Belmont Wastewater Treatment
Plant No. 1

Gentlemen:

We have been requested to furnish our opinion as to whether such deposit in the Lane Landfill was approved by the Indiana State Board of Health ("ISBH"). We have also been requested to review the construction contract documents to determine if the actions of the City and the contractor in respect of this matter conformed to all requirements of those documents.

You have advised us that sludge taken from lagoons 1, 2, 3, 4, 5, 8, 9 and 10 at the Belmont site were deposited in the Lane Landfill (also known as the McKinley Thompson Landfill). More specifically you have advised us that all sludge from such lagoons which was sufficiently liquid to be pumped was hauled away and land applied. The solid or otherwise unpumpable sludge constituted that part of the sludge from the lagoons deposited in the Lane Landfill.

We have reviewed numerous items of correspondence to and from the ISBH and the Indiana Stream Pollution Control Board ("ISPCB") staff as well as inter-office memoranda within the ISBH and ISPCB. As you know, ISPCB Regulation 18 defines "hazardous wastes" to include raw or digested sewage sludge and defines "sludge" to mean "a semi-liquid sediment." That regulation provides that "the disposal of hazardous and special wastes must conform to the following:

"(a) Under no circumstance shall hazardous wastes be accepted at a sanitary landfill unless authorized in writing by the Board or its designated solid waste management agent."

April 11, 1979

In our opinion the actions taken by, including correspondence issued by, the ISBH constitutes a legal and binding authorization by the ISBH (acting through its designated solid waste management agent) for the deposit of solid or unpumpable sludge in the Lane Landfill from lagoons 1, 2, 3, 4, 5, 7, 8, 9 and 10 in accordance with ISPCB Regulation 18 and the applicable contract documents; and further, that the City, you and the contractor had a right to rely and act upon such authorizations. Further, after review of the contract documents, it is our opinion that no further approval of the EPA or ISBH is required with respect to such deposits.

It is to be remembered that the Lane Landfill has historically been a substantial problem to this community. On September 12, 1977, Mr. Lane wrote David Lamm, Section Chief, Solid Waste Management Section, ISBH, and detailed the recent history of underground fires at that landfill. He stated that Tousley-Bixler had several thousand cubic yards of material removed from the Belmont sludge lagoons (next door) to dispose of. He proposed that he be allowed to deposit that material in the Lane Landfill, thereby extinguishing the smoldering underground fire and converting "this unsightly community liability into a community asset."

Mr. Lane followed that letter two days later with another letter to Dan Magoun in the Solid Waste Management Section with a more explicit "narrative description" of his proposal to deposit material from the Belmont lagoons in the landfill. In that narrative, Mr. Lane did not identify the material as "sludge", but, instead, referred to it as "clay type material" and put some emphasis on that characterization.

As you know, your Ron Riemer, upon learning of that characterization, wrote a letter to C. Michael Robson, Project Director for the City, expressing concern that the ISBH was not being accurately and fully informed respecting the fact that the material involved was sludge. In accordance with their discussion, Mr. Robson called Section Chief Lamm to set the record straight and to prevent any action by the ISBH based on erroneous information. Mr. Lamm made and initiated an office memorandum addressed to Guinn Doyle and Dan Magoun on September 30, 1977, stating:

"Mike Robson, Department of Public Works,
called on September 29 and reported that:

"1. They are writing a letter for 'support'
of Lane proposal.

"2. It is not a technical support of the
proposal.

April 11, 1979

"3. He points out that the 'clay type' soil description is erroneous. It is sludge, not clay.

"4. What he is 'saying' is that if we will approve it they will approve it."

Thus, there can be no doubt that the responsible officials of the ISBH were fully informed as to the nature of the material involved and, indeed, that you and the City had been careful to be certain that they did know the facts accurately.

In a November 16, 1977, memorandum to David Lamm, Dan Magoun gave this recommendation regarding the Lane Restoration Project and the concomitant disposal of Belmont lagoon sludge:

"* * * I strongly feel that this proposal is not only acceptable if adhered to, but would vastly improve an already environmentally unacceptable situation and eliminate a community eyesore."

Similarly, in a memorandum dated November 28, 1977, Bruce Paylin recommended approval. By letter dated December 7, 1977, Oral Hert, Technical Secretary to the ISPCB, wrote his letter "Re: Approval of Proposed Renovation of Former McKinley Thompson Landfill." He spoke of changes to be made "prior to placement of sewage treatment plant sludge" and commented that such steps would "provide a secure base on which dry sludge from the Belmont Sewage Treatment Plant's lagoons 1 and 2 will be placed."

In our opinion, the ISBH had then authorized the deposit of the sludge from lagoons 1 and 2 in the Lane Landfill, as permitted under ISPCB Regulation 18. Indeed, Mr. Hert's letter of February 2, 1979, apparently accepts that interpretation inasmuch as it makes no reference to sludge from those two lagoons.

In an April 27, 1978, letter to Dan Magoun, Mr. Lane of Lane Restoration requested ISBH approval for disposal of Belmont sludge in addition to that in lagoons 1 and 2. He stated:

"Tousley-Bixler Construction Company has advised us that they will have additional material available from the Belmont Avenue Sewage Treatment facility. This material will come from the bottoms of lagoons 3, 4, 5, 7, 8, 9 and 10. The liquid sludge in these lagoons is being pumped off, loaded into tanker trucks and moved into Boone County to be spread on farmland as liquid fertilizer. As they get near the bottom

April 11, 1979

of each lagoon the material becomes too heavy to be pumped. It will then be bulldozed into piles or windrows, loaded into dump trucks with a front end loader and removed from the site. Much of the clay originally used as a liner in the bottom and sides of each lagoon will be bulldozed in and mixed with the sludge making it a good material to be used in our reclamation project.

"We have taken samples of sludge from the bottoms of the lagoons and submitted them to O. A. Laboratories for a leachate analysis, see copy attached. The analysis indicates that the material can be used at our site, particularly since we are controlling the surface water run off into a sedimentation pond until the final cover can be applied over the material."

ISBH's reaction to Lane's request for approval of the disposal of additional Belmont lagoon sludge is reflected in an ISBH memorandum dated May 10, 1978. David Lamm reported:

"On May 3, 1978, I met with Mr. Jack Lane, Lane Restoration, Inc., at the Lane Renovation Project on Harding Street to discuss what progress had been made to comply with the existing sludge disposal approval, its handling problems, and use of additional sludge.

* * * *

"It did appear that Mr. Lane was doing all that could be done to properly comply with his proposal and approval letter. * * *

* * * *

"While on-site Mr. Lane handed to me a request to dispose of additional sludge from Lagoons 3, 4, 5, 7, 8, 9 and 10. * * *

* * *, *

"In view of what has been accomplished at the site and with the fire almost extinguished, the McKinley Thompson Demo Site has already been vastly improved in appearance. However, much more recontouring must be accomplished to finish the site. Considering the leachate analysis of the sludge composite samples from the additional lagoons and the continued upgrading this project

would have on this old community eyesore, I would like to suggest that the additional sludge proposal be approved with the following conditions:

"1. That the additional sludge be deposited and worked in a manner that will not impair the existing surface water diversion system.

"2. That all sludge deposited be properly contoured and prepared for fly ash cover by October 1, 1978.

"3. That the entire Phase 11 area be final covered and contoured with the lime-fly ash mixture no later than January 1, 1979." [Emphasis added.]

Thus, it is incontestible that the Chief of the Solid Waste Management Section whose responsibility encompassed the Lane Landfill, knew, from inspection and explicit description, the nature of the material involved and further that he recommended approval, subject only to routine conditions. It is apparent from ISBH documents that a decision was delayed because of a question as to the levels of cyanide in the sludge. The leachable cyanide reported for a composite sludge sample submitted on April 27, 1978, raised that concern. Subsequently, Lane Restoration provided data indicating that the cyanide concentration for Belmont lagoon #4, of 0.02 parts-per-million (ppm), was an acceptable level.

To expedite further the work at the Belmont site, Lane requested approval specifically for lagoon #4. Lane indicated that cyanide analysis and permission for disposal of sludge from Belmont lagoons 3, 5, 7, 8, 9 and 10 would be approached on an individual basis. Oral Hert, on August 9, 1978, wrote:

"The data submitted on April 27, 1978, from a composite sample from all lagoons indicated a cyanide level which is unacceptable for this project. After discussion with staff on this matter it was determined that each lagoon would be considered separately for acceptability for use in this project. You agreed that representative samples would be taken from each lagoon to determine the cyanide level in each lagoon. The data submitted on July 28, 1978, indicated that the sludge from lagoon No. 4 was acceptable for use in the renovation project. The acceptability of the remaining lagoons proposed in this project will be determined by the staff of Solid Waste Management Section.

"There is no objection to this operation provided the following conditions are met:

"1. That no sludge other than from lagoon No. 4 be used until approved by the Stream Pollution Control Board.

"2. That the sludge be spread in layers to increase drying and improve handling capabilities.

* * * *

"10. That in the event that sludge from one or more of the lagoons is unacceptable for use in this project, revised plans and specifications showing how the operation will be conducted and a timetable for completion be submitted to the Solid Waste Management Section."

At this juncture, there can be no doubt that the deposit of the sludge from lagoon #4 had been authorized, that such approval recognized that the sludge would be wet (requiring drying) and that sludge from the other lagoons was expected to go to the landfill--i.e., revised plans to complete the landfill would be required if sludge from other lagoons proved unacceptable to finish it.

On September 11, 1978, Mr. Lane wrote to Guinn Doyle of ISBH and reported the cyanide concentration for the Belmont sludge in lagoon 9 to be 0.11 ppm. Mr. Lane requested permission to dispose of this sludge in Lane Landfill. On September 18, 1978, Oral Hert confirmed that there was "no objection to the use of sludge from lagoon #9" at the Lane Landfill. Thus, that sludge was then added to the list approved for deposit in the landfill in accordance with the same precepts as outlined in the August 9, 1978, letter.

Subsequently, Lane Restoration obtained cyanide analysis of Belmont sludges for lagoons 3, 7, 8 and 10 of 0.017, 0.013, 0.016 and 0.004 ppm, respectively. (A later analysis revealed that the sludge in Belmont lagoon #5 contained leachable cyanide of only 0.014 ppm.) Based upon the results from the cyanide analysis, Lane Restoration requested approval on September 25, 1978, by the ISBH for disposal of the materials from Belmont sludge lagoons 3, 7 8 and 10. In a Supplement accompanying such request, Lane in a number of statements alluded to the consistency of the material and the procedures employed in handling it, as well as to the substantial volume (80,000 cu. yds.) to be removed from the last five lagoons. In a letter dated October 12, 1978, Mr. Hert informed Lane Restoration that the request

April 11, 1979

of September 25, 1978, had been reviewed and that the "dirt" from lagoons 3, 5, 7 and 10 of the Belmont STP could be deposited in the landfill. Twelve days later Mr. Hert modified his letter of October 12, 1978, concluding that "there is no objection to the use of dirt/sludge material from lagoons 3, 5, 7, 8 and 10" of the Belmont STP for the above referenced project.

Against the background of full information and approvals that had preceded that letter of October 24, 1978, there can be no reasonable doubt that Mr. Hert's letter constituted a continuation of the pattern of approvals previously set, in the same vein and with only the same qualifications as previously set. In our opinion, authorizations for disposition in the landfill of the unpumpable sludge from the final five lagoons was effected by that letter in full compliance with ISPCB Regulation 18.

On January 29, 1979, a letter was sent from Mr. Hert to Lane, with copies to the City and others. That letter acknowledges the state's adherence to the same standard as applied throughout prior approvals, i.e., "material that is too heavy to be pumped." That, in our opinion, was the consistent line of demarcations between what had been approved and what had not been approved by ISBH for deposit in the landfill. Such letter does not, and in our opinion cannot, retroactively impose a condition that sludge also contain clay or clay-type material.

It is to be remembered that you and Mr. Robson went to some pains to explain the facts accurately to the ISBH at the very outset of its first consideration of the landfill disposition of Belmont sludge. The ISBH knew that the subject was sludge, not clay-type material. Nor do we believe that any such qualification can be read or implied in any of the approval letters. We believe that there is no doubt whatsoever that unpumpable sludge from the named lagoons was authorized to be deposited in the Lane Landfill. It is not "unauthorized material", whether or not some persons at the ISBH dealing with this project might have believed that some clay was also included with the sludge.

The facts, as revealed in the documents reviewed, confirm the appropriateness of the ISBH authorizing disposal of the Belmont lagoon sludge in the Lane Landfill. They are:

1. ISBH has not questioned that the sludge from lagoons 1 and 2 was appropriately disposed of in the Lane Landfill. (Mr. Hert's letter of February 2, 1979.) There are no facts suggesting such sludge to be different, in any significant way, except for moisture content, from the other sludge deposited in the landfill from other lagoons.

2. The ISBH had required and received chemical analyses of the sludge for each separate lagoon and leachate tests on the sludge before issuing its approval. There is no reason to believe that the ISBH made an improper judgment based upon those facts.

3. Refuse Facility Inspection Reports of January 29, 1979, January 26, 1979, November 27, 1978, November 11, 1978, November 10, 1978, and September 21, 1978 (which described sludge conditions at the landfill in detail only a few weeks before the last approvals) characterize the Lane Landfill as acceptable. Moreover, none of these inspection reports indicates an improper hazardous waste disposal even though the Report Form characterizes any such condition as a "major violation requiring immediate correction."

4. Finally, ISBH laboratory data sheets of November 27, 1978, and October 16, 1978, confirm that the Belmont lagoon sludge taken to the landfill was a relatively dry sludge. A solids concentration ranging approximately from forty (40) to ninety (90) percent was found in the samples tested by the ISBH.

We also understand that the question of whether or not the disposal of the Belmont lagoon sludge was approved by the ISBH may have some impact upon the grant funding. Inasmuch as the background facts support completely the conclusion that ISBH has authorized in writing an approval of the disposal of Belmont lagoon sludge, there appears no basis for the State or EPA to withhold approval of payments under this project.

No doubt some of the confusion surrounding this concern traces to imperfect communications within the ISBH. The Solid Waste Management Section of the ISBH has responsibility, in the first instance, for making the approvals of land disposal required by ISPCB Regulation 18. Naturally, therefore, the information provided to secure the ISBH's approval was directed to the Solid Waste Management Section. Both the Solid Waste Management Section and the Construction Grants Section fall within the purview of the Bureau of Engineering. Thus, one would reasonably assume that the two sections would have access to the same data base and, indeed, that the Construction Grants Section would make inquiry of the Solid Waste Management Section if it had any question concerning actions lying within the purview and authority of that section.

Based upon conversations we have had with Mr. Robert Penno in the course of obtaining ISBH records in this matter,

April 11, 1979

this is apparently not the case. In fact, Mr. Penno related to us that he had not been privy to information concerning the approval by the ISBH of the disposal of Belmont lagoon sludge in the Lane Landfill until recently, sometime around the end of November, 1978. The records of the ISBH establish that Mr. Penno's memory is quite faulty on this most significant fact.

NO

On September 29, 1977, when the question of deposit of the sludge in the landfill was first raised for ISBH consideration, Mr. Robson wrote Mr. Magoun, with carbon copy to Mr. Penno:

NO

"This is to confirm the City's support of the request of LANE RESTORATION for a letter of non-objection from the Indiana State Board of Health to accept certain types of solid sludge material from the Belmont Wastewater Treatment Plant. * * * The contractor, if he chooses to remove this material from the site, is required to dispose of it at 'approved landfills'. Approved landfills for the purpose of this contract are defined as: 'landfill sites that have the written approval of all agencies having jurisdiction for the specific material proposed to be disposed of therein'. The contractor is seeking the written approval of Indiana State Board of Health in conformance with the specifications."

Thus, Mr. Penno was informed from the very beginning, quite fully and openly, of the City's intention to have sludge deposited in the Lane Landfill, provided the ISBH approved of such action.

NO

Further, your Mr. Vornehm talked with EPA's Mr. Brasher and Mr. Denbo on February 21, 1978, seeking EPA's assurance that it did not deem it necessary for the City to obtain EPA's written approval prior to depositing sludge or other hazardous wastes in a landfill certified by the ISBH for their disposal. That interpretation was confirmed by both men. On March 14, 1978, Mr. Vornehm confirmed that understanding in writing to Mr. Brasher, carbon copy to Mr. Denbo:

NO

Authority

"Based on our conversation of February 21, 1978, it is our understanding that the Environmental Protection Agency does not believe it is necessary for Indianapolis to obtain their written approval prior to transportation of sludge, grease or other hazardous waste to areas certified by the Indiana State Board of Health for their disposal. If our understanding is in error, or you wish to further clarify this issue, please contact

April 11, 1979

us or Mr. C. Michael Robson of the Indianapolis
Department of Public Works."

Additional copies of the letter were sent to both Mr. Robson and to Mr. Penno. Thus, Mr. Penno was on notice not only that sludge was being sent to the landfill but also that EPA required no approvals beyond the requirement that the material go to an ISBH approved landfill. NO

When pertinent documents are reviewed and memories refreshed, it should certainly be evident to all concerned that the City and you have dealt carefully, openly and responsibly with this subject; that the ISBH knowingly approved the deposit of unpumpable sludge in the Lane Landfill (perhaps motivated in part by a desire to solve a major problem with that landfill); that the ISBH did so only after careful testing of the materials to be deposited; and that the reliance by the City and contractor upon the ISBH action (and your own clearance with EPA) was reasonable and wholly justifiable.

So far as all contract documents are concerned, we, as related by our letter of February 1, 1979, believe it is clear from the language and the purpose sought that the option bid was not meant to fix an exclusive method of disposal. If Tousley-Bixler Construction Co., Inc. ("the contractor"), wished to dispose of sludge by landfilling, however, Section 02242 of the Specifications did impose some limitations. In particular, paragraph 1.03(0) of Section 02242 required that all sludge be disposed of only at "approved" landfills. Inasmuch as disposal of Belmont lagoon sludge in the Lane Landfill was approved by all agencies having jurisdiction, we are satisfied that the approvals required by the contract have been met.

We would hope and trust that when all of the pertinent facts have been put before Mr. Hert and the EPA, this matter will be satisfactorily resolved. Accordingly, we have not at this time addressed any question of remedies available to the City in the event funding commitments are not fulfilled or other sanctions are directed toward the City.

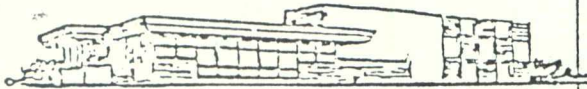
If you have any questions respecting our opinion, we shall be happy to discuss them with you.

Very truly yours,

BAKER & DANIELS

Baker & Daniels

CLW:du



LANE RESTORATION

4600 BLUFF ROAD, INDIANAPOLIS, INDIANA 46217 • 317 788-4431

Big or Small - We Clean Them All

September 12, 1977

David Lamm, Section Chief
Solid Waste Management Section
Indiana State Board of Health
1330 West Michigan
Indianapolis, Indiana 46206

Re: Alteration of the McKinley Thompson Landfill,
Harding Street, Indianapolis, Indiana.

Dear Mr. Lamm:

I am purchasing the McKinley Thompson landfill. I plan to complete filling the area with solid waste materials similar to my landfill operation at the 4600 Bluff Road address. No combustible or putrescible materials will be permitted.

Judge Norman Brennan, attorney for Mr. Thompson tells me there has been a landfill in operation on this property since 1913. Last February an underground fire broke out on the property causing a wide spread nuisance to residents in the area. Mr. Thompson spent a small fortune trying to extinguish this fire. It is now under control but it is still smoldering underground.

Tousley Bixler Construction Company has the site improvement contract at the Indianapolis Belmont Avenue sewage treatment plant. That plant is located next door north (across White River) from the McKinley Thompson property. Tousley Bixler has several thousand cubic yards of material removed from the sludge lagoons to dispose of. This material can be used as fill at the McKinley Thompson site and when properly spread and covered it will completely smother the underground fire.

The McKinley Thompson site is now a real potential fire and health hazard. Mr. Thompson is now about 85 years old and no longer capable of coping with the problems.

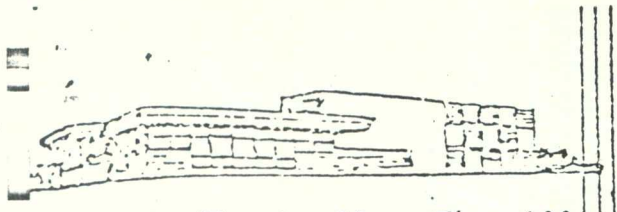
I can acquire the site, spread the old building materials now stacked in unsightly piles on the property, cover it with the above material thus completely smothering the fire, contour the site for good drainage and cover it with a good water tight, lime-fly ash stabilized material. In doing this we can convert this unsightly community liability into a community asset.

I am enclosing topographical maps of the area and a leachate analysis of the material from Belmont Avenue Sewage Treatment Plant.

Trusting that this meets with your approval, I am,

Sincerely yours,

W. J. Lane
W. J. Lane



Big or Small - We Clean Them All

LANE RESTORATION

4600 BLUFF ROAD, INDIANAPOLIS, INDIANA 46217 • 317 788-4431

September 14, 1977



Mr. Dan Magoun
Solid Waste Management Section
Indiana State Board of Health
1330 West Michigan
Indianapolis, Indiana 46206

Re: Narrative Description of the Proposed Renovation of the former
McKinley Thompson Landfill at 3200 S. Harding, Indianapolis.

Dear Dan:

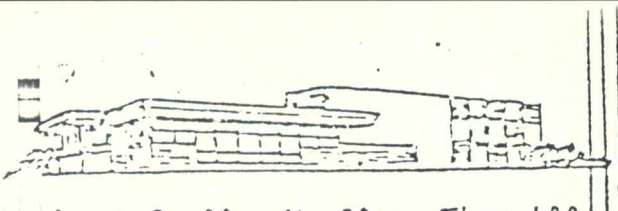
We are enclosing a detailed narrative of the proposed renovation of
the old McKinley Thompson Landfill as we discussed with you yester-
day.

If you need more information or have any questions please call
me.

Sincerely yours,

Jack Lane

W. Jack Lane



LANE RESTORATION

4600 BLUFF ROAD, INDIANAPOLIS, INDIANA 46217 • 317 788-4431

Big or Small - We Clean Them All

A narrative description of the proposed renovation of the former McKinley Thompson Landfill at 3200 South Harding Street, Indianapolis, Indiana 46217.

INTRODUCTION

W. Jack Lane of Lane Restoration with offices at 4600 Bluff Road, Indianapolis has purchased the property at 3200 South Harding Street, previously known as the McKinley Thompson Landfill. The purchase included 76 acres of land as outline in the enclosed legal description.

The site has been used as a landfill since 1913. During the past twenty years most of the debris from the demolition of older homes in the Indianapolis inner city area was disposed of in this landfill. Much of this building debris was not adequately covered and old piles of lumber are still exposed in Area 2 of the landfill.

An underground fire broke out in Area 2 in December, 1976 causing a wide spread nuisance to residents in the area. The months of December, January and February were the coldest months in Indiana recorded history. The severe cold hampered the efforts to extinguish the fire and prevented it from being brought under control until the Spring of 1977. However, the fire is still smoldering underground and it presents a potential health and nuisance hazard.

This site is now in a condition that is detrimental to the community. The intent of this narrative is to describe the methodology that will be used to alleviate the problems that the site presents.

It is our intent to improve the present condition of the site in the following sequence:

1. The exposed debris in Area 2 will be levelled with a bulldozer and adequately covered.
- 4 7 2. The underground fire will be extinguished by covering the area with a clay type material trucked in from the Belmont Sewage Treatment Plant expansion project. This material will be installed in sufficient quantity and depth to blanket the area and smother the fire.
3. A lime-fly ash mixture will be placed over the clay type material after the area has been brought up to final grade. This lime-fly ash mixture will create an impermeable cap to facilitate runoff and prevent erosion.
4. The same procedure will be used to bring Area 1 up to final grade and cap it with the lime-fly ash mixture.

DEBRIS LEVELLING IN AREA 2

Area 2 represents the portion of the property that needs the most attention. The area is undulating and large amounts of wood and other building debris have been left in exposed piles. Part of this area still shows evidence of underground burning.

In its present condition the land is worthless, unsightly and presents an environmental hazard. It will be bulldozed flat as the initial phase of this operation and the covering phase will then begin.

7
3:15
2-655

CLAY TYPE COVER APPLICATION

The initial debris levelling procedure will not eliminate the fire hazard in Area 2. A heavy clay cover will be necessary to smother the fire and prevent future surface fires.

A clay type material is available from the neighboring Belmont Sewage Treatment Plant Expansion Project now under construction by the Tousley Bixler Construction Company. We arranged for a leachate analysis of this material to be performed by O. A. Laboratories (copy enclosed). We are also enclosing a gross composite analysis of the material.

The leachate tests show that the material does not present an environmental hazard. The clay type material will be hauled in tri-axle dump trucks, deposited on the site and spread with a bulldozer. This phase is expected to take about 100 working days.

LIME-FLY ASH SURFACE STABILIZATION

A lime-fly ash mixture will be applied over the clay type material in Area 2 and mixed with a pulverizer, graded out with a road grader and compacted with a vibrating compactor. This material sets up much like concrete to form a hard impermeable cover.

This method of surface stabilization has proven very effective at the Lane property at 4600 Bluff Road where it is regularly used as a parking lot and storage area for heavy equipment exceeding 100,000 pounds.

This procedure will isolate the area it covers from water infiltration and it will further assist in smothering the underground fire. It will also assist in converting this area from a community eye sore into a community asset.

RUNOFF CONTROL

As a point to belay any concern over erosion control and flooding problems, much of the property will not be covered with the lime-fly ash mixture but will be landscaped, particularly along the drainage ways, to slow down rain water runoff and allow for infiltration.

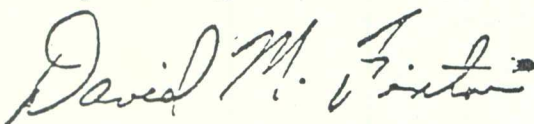
A major portion of the rain water runoff will move directly into the White River while the remaining portion will move south and west through an existing drainage way.

CONCLUSION

This narrative describes the rejuvenation of a property using environmentally safe procedures with lab tested safe materials within a relatively short period of time. Debris will be levelled, a fire will be extinguished, a clay type cover will be applied and the surface stabilized.

This procedure will eliminate a community eye sore, a fire problem and a potential environmental hazard. It will restore a waste land into a useable community property suitable for commercial or industrial purposes.

Respectfully submitted by:



David M. Finton, R.P.S.
Technosolve, Inc.

REID, QUEBE, ALLISON, WILCOX
& ASSOCIATES, INC.

CONSULTING ENGINEERS

ROBERT T. REID, President
WILLIAM F. QUEBE P.E.
JOHN B. ALLISON Jr. P.E.
ARTHUR T. WILCOX P.E.
J. EDWARD DOYLE P.E.

October 3, 1977

Mr. C. Michael Robson, P.E.
Project Director
2460 City-County Building
Indianapolis, Indiana 46204

Re: Disposal of Sludge from Lagoons 1 and 2
Belmont General Sitework
Indianapolis AWT Project

Dear Mike:

This letter is a verification of our telephone call of September 29, 1977 concerning the documents which you supplied to us on September 28, 1977 from Lane Restoration. It is my understanding these documents were prepared for disposal of the sludge from Lagoons 1 and 2 of the Belmont Treatment Plant into the McKinley Thompson Landfill on south Harding Street in Indianapolis. During the telephone conversation, I brought up the following concerns regarding our review of the documents provided:

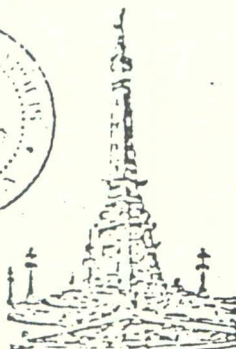
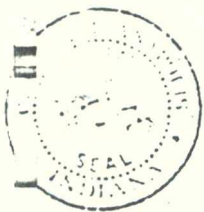
- (1) The usage of the term "clay-type material" is a misrepresentation of the sludge which is contained in the lagoons. The sludge is a semi-solid but definitely is not a soil.
- (2) We are concerned about the proposal that the sludge be used as means to smother an existing fire at the landfill site. The sludge solids concentration is approximately 40% and may be able to support combustion. Therefore, there is a potential that the sludge may even create a more serious problem at the landfill site.
- (3) The laboratory analysis done by QA Laboratories, Inc. indicates that only one sample of sludge was submitted to them. However, the EPA data on these lagoons shows a major difference between the sludge in Lagoon 1 and the sludge in Lagoon 2. It is our opinion that a sample should be taken from Lagoon 2 which has higher PCB concentration and would likely show more indication of leachate than a sample taken only from Lagoon 1. Information should be obtained as to which lagoon the sludge sample was taken.

If you have any further questions on this matter, please let us know.

Very truly yours,

RER
Ronald E. Riener, P.E.

RER/kms



CITY OF INDIANAPOLIS 30 5 42 AM '77

WILLIAM H. HUDNUT, III
MAYOR

SANITARY PROJECTS
DIVISION
STATE BOARD OF HEALTH

DEPARTMENT OF PUBLIC WORKS
2460 CITY-COUNTY BUILDING
INDIANAPOLIS, INDIANA 46204

DIRECTOR
DAVID W. HOPPOCK

September 29, 1977

Mr. Dan Magoun
Solid Waste Management Section
Indiana State Board of Health
1330 West Michigan
Indianapolis, Indiana 46206

Dear Mr. Magoun:

This is to confirm the City's support of the request of LANE RESTORATION for a letter of non-objection from the Indiana State Board of Health to accept certain types of solid sludge material from the Belmont Wastewater Treatment Plant. This material is to be removed from existing "ash" lagoons 1 and 2 by Tousley-Bixler Construction, Inc., under their current contract with the City of Indianapolis. The contractor, if he chooses to remove this material from the site, is required to dispose of it at "approved landfills". Approved landfills for the purpose of this contract are defined as: "landfill sites that have the written approval of all agencies having jurisdiction for the specific material proposed to be disposed of therein". The contractor is seeking the written approval of Indiana State Board of Health in conformance with the specifications.

The completion of the Belmont Sitework Contract is a key phase of the City's Advanced Water Treatment Construction Project. We would appreciate your efforts to expedite the requested letter of non-objection.

Yours truly,

C. Michael Robson, Director
Liquid and Solid Waste Projects
DEPARTMENT OF PUBLIC WORKS

CMR/as

cc: David W. Hoppock, Director, DFW
Richard Milan, DFW
Tousley-Bixler (2)
Robert Penno, ISBH
R. Riemer, RQAW

STATE BOARD OF HEALTH

INDIANAPOLIS

OFFICE MEMORANDUM

DATE: September 30, 1977

THRU:

TO: Guinn Doyle
Dan Magoun

FROM: David Lamm

DDL
9/30/77

SUBJECT:

Mike Robson, Department of Public Works, called on September 29 and reported that:

1. They are writing a letter for "support" of Lane proposal.
2. It is not a technical support of the proposal.
3. He points out that the "clay type" soil description is erroneous. It is sludge, not clay.
4. What he is "saying" is that if we will approve it they will approve it.

DDL/sjk

STATE BOARD OF HEALTH

INDIANAPOLIS

OFFICE MEMORANDUM

DATE: November 16, 1977

TO: Chester H. Canham
David D. Lamm

THRU:

FROM: Dan Magoun *DM*

SUBJECT: Lane Restoration Project

Attached are the original and revised plans for the proposed renovation of the former McKinley Thompson Landfill.

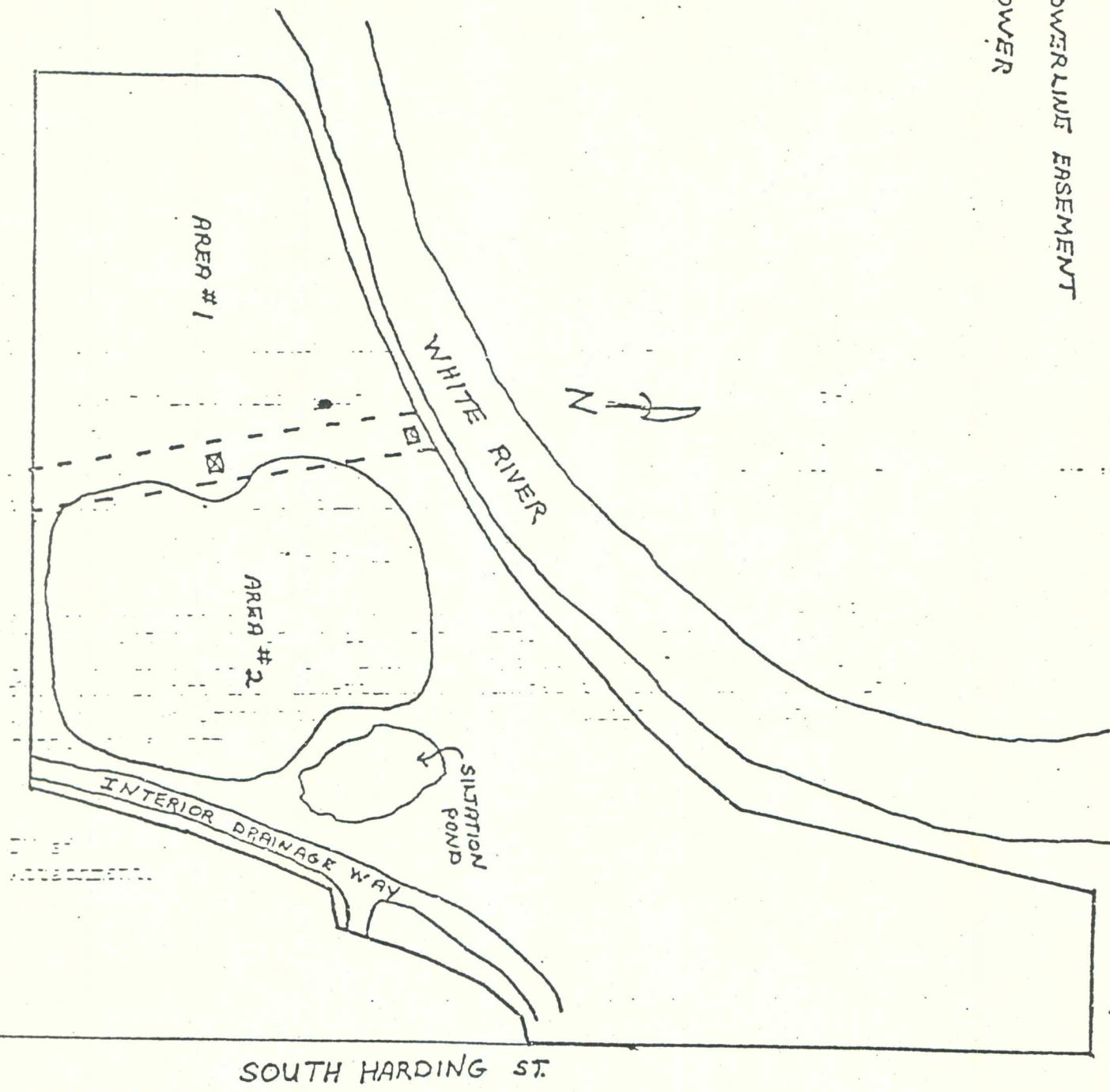
The revised plans address the need to cover all exposed refuse and recontour the entire portion of Area II. The recontouring will eliminate any ponding and will divert all surface water to a retention pond on the eastern portion of Area II which will have the capacity to retain a three-inch rain in excess of 24 hours.

I believe that the revised proposal answers many or all of the questions raised. On November 1, 1977, I did have the opportunity to walk the old fill. Not only does a large area of exposed refuse still exist but an inner fill fire continues and more than likely will continue if no action is taken. Therefore, I strongly feel that this proposal is not only acceptable if adhered to, but would vastly improve an already environmentally unacceptable situation and eliminate a community eyesore.

DM/sjk
Attachments

--- POWERLINE EASEMENT

⊠ TOWER



WEST SUMNER AVE

SUMMARY
Final Proposal for Non-Object Approval
Lane Restoration of McKinley Thompson Site
Marion County

Description - The McKinley Thompson Demolition Site, located at 3200 Harding Street, has had a poor operating history and was left with several exposed areas and an underground fire which has broken through on numerous occasions. Lane Restoration has purchased the property and is proposing to renovate the site. ~~It is proposed that the site will be covered with fly ash and lime sludge and some areas will be covered with dried sludge from the Belmont Sewage Treatment Plant in order to raise some of the lower elevations and allow proper contouring.~~ The sludge will then be covered with lime sludge and fly ash and this cover stabilized.

Owner - Lane Restoration
4600 Bluff Road
Indianapolis, IN

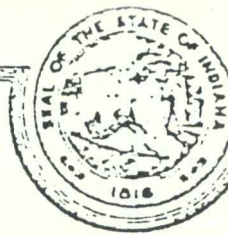
→ Operating Procedure - Exposed debris in area 2 will be leveled and covered with fly ash. Lime sludge will be applied prior to placement of sewage treatment plant sludge. This will serve to smother the underground fire and when dry will provide a secure base on which dry sludge from the Belmont Sewage Treatment Plant lagoons #1 and #2 will be placed. A berm will be constructed around the disposal area prior to dried sludge disposal to prevent surface water runoff from entering the fill area. Also a siltation pond will be constructed at the northeast corner of the site to collect any surface water running off of the disposal area. Daily cover will consist of fly ash, and the final cover will be a stabilized lime-fly ash mixture which will provide an impermeable barrier over the disposal area.

Recommendations - It is recommended that this site receive approval with the following conditions:

1. That all necessary local permits are obtained.
2. That no material other than that stated in the proposal be deposited on-site.

BHP/sjk

11/28/77



STREAM POLLUTION CONTROL BOARD

1130 West Michigan Street
INDIANAPOLIS, IN 46206

December 7, 1977 ✓

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN 46217

Dear Mr. Lane:

Re: Approval of Proposed Renovation of
Former McKinley Thompson Landfill
at 3200 South Harding Street
Marion County

You are hereby advised that the review of your proposal submitted on September 13, 1977, and the supplementary information submitted on November 9, 1977, for the operation of the above-referenced project has been completed. The project consists of approximately 20 acres, noted as area #2 in the submitted plans, located in the S 1/2 of the NW 1/4 of Section 27, T 15 N, R 3 E, bounded on the west by power lines and on the north by the White River.

It is understood that the exposed debris in area 2 will be leveled and covered with fly ash. Lime sludge will be applied prior to placement of sewage treatment plant sludge. This will serve to smother the underground fire and when dry will provide a secure base on which dry sludge from the Belmont Sewage Treatment Plant's lagoons #1 and #2 will be placed. A berm will be constructed around the disposal area prior to dried sludge disposal to prevent surface water runoff from entering the fill area. Also a siltation pond will be constructed at the northeast corner of the site to collect any surface water running off of the disposal area. Daily cover will consist of fly ash, and the final cover will be a stabilized lime-fly ash mixture which will provide an impermeable barrier over the disposal area.

December 7, 1977

There is no objection to this operation provided the following conditions are met:

1. That all necessary local permits are obtained.
2. That no material other than that stated in the proposal be deposited on-site.

Very truly yours,

Oral H. Hart

Oral H. Hart
Technical Secretary

BHPalin/lu

cc: Marion County Health and Hospital Corporation
Marion County Planning and Zoning

Big or Small - We Clean Them All

✓
April 27, 1978

Mr. Dan Magoun
Solid Waste Management Section
Indiana State Board of Health
1330 West Michigan
Indianapolis, Indiana 46206

RECEIVED

DEC 18 1977

R.Q.A.W. & ASSOC. INC.

MAY 3 4 02 PM '78
SOLID WASTE MANAGEMENT
SECTION
STATE BOARD OF HEALTH

Re: Approval of the renovation of the former McKinley Thompson Landfill
3200 South Harding Street, Marion County, Indiana per Stream Pollution
Control Board letter dated December 7, 1977.

Dear Mr. Magoun:

We want to thank you and the Indiana Stream Pollution Control Board for your letter of approval that outlined the procedures we were to follow in accomplishing the renovation of this site.

One of the primary purposes of utilizing sludge was to extinguish the underground fire at the site. We are happy to report that the fire is almost extinguished (we estimate 90%) and it is under control.

Let me outline the methods we used to comply with the terms of your letter of approval. The debris in area 2 was bulldozed level and covered with more than 20,000 cubic yards of fly ash, more than 4,000 cubic yards of lime sludge was added and mixed into the fly ash. A berm was constructed around the area to control any surface water run off and the surface water run off was directed into a sedimentation pond.

We then trucked in sewage sludge from the Belmont Avenue Sewage Treatment plant and deposited it in area 2. We were unable to spread the sludge at the time due to severe winter weather so we crowded it into the area where we could keep surface water run off under control until the sludge could be spread and provided with a final cover. The trucking operation began December 13, 1977 and continued until February 13, 1978.

We do not have enough material on site to complete the final contouring and grading of area 2 as shown on our topography maps, Sheet 3, submitted to you September 13, 1977.

Tousley-Bixler Construction Company has advised us that they will have additional material available from the Belmont Avenue Sewage Treatment facility. This material will come from the bottoms of lagoons 3, 4, 5, 7, 8, 9 and 10. The liquid sludge in these lagoons is being pumped off, loaded into tanker trucks and moved into Boone County to be spread on farmland as liquid fertilizer. As they get near the bottom of each lagoon

April 27, 1978

the material becomes too heavy to be pumped. It will then be bulldozed into piles or windrows, loaded into dump trucks with a front end loader and removed from the site. Much of the clay originally used as a liner in the bottom and sides of each lagoon will be bulldozed in and mixed with the sludge making it a good material to be used in our reclamation project.

We have taken samples of sludge from the bottoms of the lagoons and submitted them to O. A. Laboratories for a leachate analysis, see copy attached. The analysis indicates that the material can be used at our site, particularly since we are controlling the surface water run off into a sedimentation pond until the final cover can be applied over the material.

We believe that we have complied with the terms and intent of your letter of approval but that we are only half finished with the reclamation of Area 2.

We are therefore requesting additional approval to bring the remainder of the Belmont Avenue Sewage Treatment plant sludge to our site so that we can complete this project this year.

We earnestly solicit your favorable consideration and approval. We invite a personal inspection at your convenience.

Sincerely yours,

W. Jack Lane

W. Jack Lane
Owner

OFFICE MEMORANDUM

DATE: May 10, 1978 ✓

THRU: David D. Lamm
George Oliver 50TO: Lane Renovation Project
(McKinley Thompson Site),
Harrison County
FROM: Dan Hagoun

SUBJECT: Request for Additional Sludge Disposal

On May 3, 1978, I met with Mr. Jack Lane, Lane Restoration, Inc., at the Lane Renovation Project on Harding Street to discuss what progress had been made to comply with the existing sludge disposal approval, its handling problems, and use of additional sludge.

In walking the Phase II area the following items were observed:

1. The entire Phase II has been recontoured and a base layer of fly ash applied with the exception of the southern boundry (cliff).
2. The diversion berm has been constructed and is functional. It appears to be adequate in diverting surface water to a sediment pond on the southeast portion of the site.
3. The stockpiled sludge from Lagoons 1 and 2 is being reworked to recontour and eliminate any ponding of water.
4. The sludge is still somewhat difficult to work. As a consequence, a rental dozer is on-site to pull the working dozer free whenever it becomes stuck in the sludge (which did occur once while I was on-site).
5. Only one small area showed signs of continued underground burning.
6. The site has been maintained almost litter free. Even the entrance area has been routinely policed to clean after promiscuous dumpers.

It did appear that Mr. Lane was doing all that could be done to properly comply with his proposal and approval letter. Certain problems have been encountered which have prohibited proper compliance and they are the following:-

1. Sludge when deposited on the site was not as workable as initially anticipated. Combined with the severe winter the sludge was either frozen or too wet and was impossible to be worked and spread by the equipment on-site.

2. The quantity of sludge from the first two lagoons was not sufficient to bring the phase II area up to proposed grade. As a consequence, proper contouring to comply with the proposal cannot be obtained. In addition, surface drainage cannot properly be diverted.

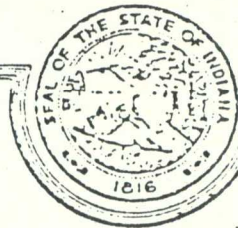
While on-site Mr. Lane handed to me a request to dispose of additional sludge from Lagoons 3, 4, 5, 7, 8, 9 and 10. He explained that the additional quantity of sludge would be sufficient to bring the site into compliance with proposed grades. However, upon questioning him about the spreadability of the additional sludge, he indicated that he was not certain but believed the new sludge would probably be as difficult to spread as the first due to its wetness. He further explained that this sludge would contain more clay as the clay liners of the lagoons are to be removed also and combined with the dry summer weather the sludge should dry more rapidly, thus, the material would be more workable.

I also questioned his capability to apply a daily fly ash cover to the new material. He stated that in view of the problems encountered with the first sludge he doubted if daily cover could be accomplished. In addition, the quantity of fly ash available during the summer months is much less than the fall and winter. As a consequence, a suitable amount of fly ash would not be available for daily cover.

In view of what has been accomplished at the site and with the fire almost extinguished, the McKinley Thompson Demo Site has already been vastly improved in appearance. However, much more recontouring must be accomplished to finish the site. Considering the leachate analysis of the sludge composite samples from the additional lagoons and the continued upgrading this project would have on this old community eyesore, I would like to suggest that the additional sludge proposal be approved with the following conditions:

1. That the additional sludge be deposited and worked in a manner that will not impair the existing surface water diversion system.
2. That all sludge deposited be properly contoured and prepared for fly ash cover by October 1, 1978.
3. That the entire Phase II area be final covered and contoured with the lime-fly ash mixture no later than January 1, 1979.

BM/JS



STREAM POLLUTION CONTROL BOARD

1530 West Michigan Street
632-5407

August 9, 1978 ✓

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN 46217

Dear Mr. Lane:

Re: Renovation of Former
McKinney-Thompson Landfill at
3200 South Harding Street
Marion County

You are hereby advised that the review of your request of April 27, 1978, and the supplementary data submitted July 28, 1978, has been completed. The project consists of approximately 20 acres, noted as area No. 2 in plans previously submitted, located in the S $\frac{1}{2}$ of the NW $\frac{1}{4}$ of Section 27, T15N, R3E bounded on the west by power lines and on the north by the White River. It is proposed that area No. 2 will be brought to specified elevation by using the sludge and dirt mixture from lagoons 3, 4, 5, 7, 8, 9 and 10 of the Belmont Sewage Treatment Plant. Once the material is in place, a final cover of a lime/fly ash mixture will be applied. All surface drainage from area No. 2 will be controlled during the operation by directing the surface water runoff via the existing holding pond.

The data submitted on April 27, 1978, from a composite sample from all lagoons indicated a cyanide level which is unacceptable for this project. After discussion with staff on this matter it was determined that each lagoon would be considered separately for acceptability for use in this project. You agreed that representative samples would be taken from each lagoon to determine the cyanide level in each lagoon. The data submitted on July 28, 1978, indicated that the sludge from lagoon No. 4 was acceptable for use in the renovation project. The acceptability of the remaining lagoons proposed in this project will be determined by the staff of Solid Waste Management Section.

There is no objection to this operation provided the following conditions are met:

1. That no sludge other than from lagoon No. 4 be used until approved by the Stream Pollution Control Board.

August 9, 1978

2. That the sludge be spread in layers to increase drying and improve handling capabilities.
3. That, where needed in area No. 2, exposed rubbish be covered with a minimum of six inches of fly ash.
4. That all surface drainage from area No. 2 be controlled and directed to the existing holding pond.
5. That area No. 2 be brought to the approved elevation and contours specified in the proposal on or before November 1, 1978.
6. That the final cover of lime/fly ash mixture be applied as soon as possible and be completed on or before June 1, 1979.
7. That slope correction along the immediate southern boundary of area No. 2 be completed by October 1, 1978.
8. That all of the specifications as outlined in the approved plans be adhered to.
9. That in the event that sludge removal from the lagoons is delayed a written explanation of the delay be submitted to the Solid Waste Management Section along with revised plans and specifications showing how the operation will be conducted and a timetable for completion.
10. That in the event that sludge from one or more of the lagoons is unacceptable for use in this project, revised plans and specifications showing how the operation will be conducted and a timetable for completion be submitted to the Solid Waste Management Section.
11. That all necessary local permits or approvals be obtained.

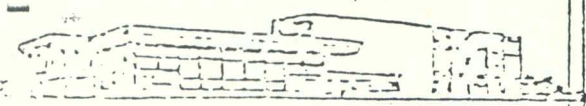
Very truly yours,

Oral H. Hert

Oral H. Hert
Technical Secretary

GDoyle/lu

cc: Marion County Health & Hospital Corporation
Marion County Planning and Zoning
Tousley-Bixler Construction Company
Marion County Department of Public Works



Big or Small - We Clean Them All

LANE RESTORATION

4600 BLUFF ROAD, INDIANAPOLIS, INDIANA 46217 • 317 728-4431

September 11, 1978

Mr. Guinn Doyle
Solid Waste Management Section
Indiana State Board of Health
1330 West Michigan
Indianapolis, Indiana 46206

Dear Mr. Doyle:

Re: Renovation of former
McKinley Thompson Landfill at
3200 South Harding Street
Marion County

I am enclosing a copy of the analysis of sludge from Lagoon #9 at the Belmont Avenue Sewage Treatment Plant. The analysis indicates a Cyanide content of 0.11 ppm which appears to be well within the limits of safety for removal to our site on Harding Street.

Lane

We are asking for your further approval to remove this sludge and dispose of it using the criteria outlined in your letter of August 9, 1978.

Please advise as soon as possible.

Sincerely,

W. Jack Lane

W. Jack Lane

enclosure

WJL/ljk

STATE BOARD OF HEALTH
DIVISION OF
SANITARY ENGINEERING
SEP 11 2 21 PM '78

DISCUSSION OF CYANIDE CONCENTRATIONS

The composite leachate sample analysis submitted with the original proposal indicated a high cyanide content. This has created a question as to where the high cyanide concentrations are since individual concentrations of cyanide tested in lagoons 4 and 9 have been reported low.

The samples taken for the original composite analysis were taken prior to the removal of the liquid from the lagoons. During the process of pumping the liquid from the lagoons, a large air compressor is pulled back and forth over the surface of the lagoon injecting air deep into the lagoon through pipes. This causes homogenizing of liquids and solids and altering all the material in the lagoon. Much of the cyanide originally detected in the composite sample has been homogenized into the liquid and already hauled away. The material from the lagoon bottoms, tested after the liquid has been removed, then yields a lower cyanide concentration.

As an odor control measure, lime was added to lagoons 8 and 10. A recent leachate analysis from lagoon 10 bottoms yielded a cyanide concentration of 4 parts per billion. According to Bill Ontess of O.A. Labs., the addition of lime to lagoon 10 caused the remaining cyanide to be "tied up" and not subject to leaching out in any appreciable concentration.

METHOD OF CYANIDE LEACHATE ANALYSIS

O.A. Laboratories has been conducting all our laboratory testing for this project. They have recently developed a new method of leachate preparation in accordance with new Federal EPA requirements.

The new method of leachate preparation requires stirring the sample in water for 48 hours prior to analysis. Previous leachate preparations involved only three hours mixing in a blender.

Mr. Oliver of the Solid Waste Management Section should have a copy of this new leachate preparation method.

CONCLUSIONS

It has been obvious that personnel involved with approving this project at the State Board of Health have been reluctant to do so. There have been many delays, many questions and much time has passed since the original proposal for this project was made.

What has been learned about the material and how it must be handled since the actual start of the project. Methods of handling as proposed and as specified in the ISER approval letter have been changed:

- (1) The material cannot be applied in layers; it must be pushed into place and cannot be driven on immediately.

- (2) The material must be allowed to dry and must be able to drain in order to get a bulldozer on it later to compact and cover.
- (3) The unusually large amounts of rain have had a bad effect on the entire Belmont project and have caused delays.
- (4) The material has been effective in killing the underground fire, covering the previously exposed refuse and bringing the site to a useable final grade.
- (5) The material has been well-controlled and has created no environmental or public nuisance problems. The news media has applauded the project, something unusual in the environmental field.

This project can be considered "new territory" for all of us. It has aided the City of Indianapolis in their expansion project of the Belmont Plant and will eliminate an eyesore that would have been a perpetual fire and environmental problem.

We hope this supplement has helped you better understand the present status of the project and also understand the problems a contractor faces with the uncertainties of estimates on volumes, methods of handling, weather and condition of the material once it is ready to be moved.

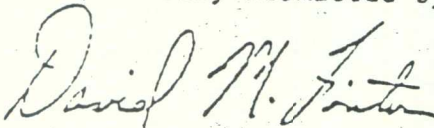
SUMMARY

We are requesting the following changes from our original proposal and resulting approval:

- (1) That Area #1 be approved for disposal of lagoon bottoms from the Belmont Expansion Project. Drainage from Area #1 will flow to the same runoff collection pond as Area #2. (See accompanying drawing).
- (2) That the deadline for reaching final elevation in Area #2 be moved ahead to June 1, 1979.
- (3) That all requirements as previously specified will be adhered to through the completion of the project.

We thank you for your consideration of this supplement and await your prompt response.

Respectfully submitted by:



David M. Finton, Pres.
Technosolve, Inc.

DMF/ljk

encl:

September 21, 1978

Page 1 of 1

Lane Restoration
4600 Bluff Road
Indianapolis, Indiana 46217

ATTN: Robert J. Lane

RE: Report of analysis of sludge sample (from Belmont Ave. treatment
plant lagoon #10) received September 18, 1978 and designated as
LTR 7144

Leachable Cyanide = 4 ppb (w/w)

Submitted by
O A Laboratories, Inc.

William E. Oatess
William E. Oatess
Laboratory Director

WEO:mlw

SEP 25 2 23 PM '78
SANITARY ENGINEERING
DIVISION
STATE DEPT. OF HEALTH

A Laboratories, Inc.

SEP 25 2 23 PM '78
SANDS ENGINEERING
STATE OF INDIANA HEALTH

September 25, 1978
Page 1 of 1

Lane Restoration
4600 Bluff Road
Indianapolis, Indiana 46217

ATTN: Robert J. Lane

-RE: Leachable cyanide in sludge samples submitted September 19, 1978

PURPOSE: Determine leachable cyanide content of three sludge samples.

SAMPLE DESCRIPTION: Each sample was a grey-black wet sludge. Table 1 cross references your sample numbers to our LTR numbers.

Table 1

<u>LTR Number</u>	<u>Your Number</u>
7147-1	pit #3
-2	pit #7
-3	pit #8

PROCEDURE: The samples were extracted by the proposed American Society for Testing and Materials (ASTM) procedure for Leaching of Waste Materials. The resulting leachates were prepared and analyzed by colorimetric methods.

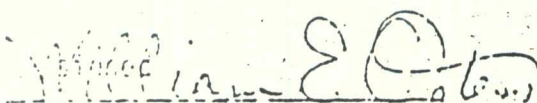
RESULTS: Table 2 enumerates the results.

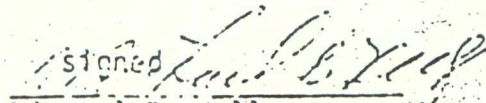
Table 2

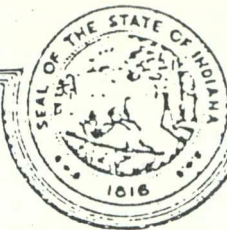
<u>LTR Number</u>	<u>Leachable Cyanide*</u>
7147-1	17 ppb
-2	13 ppb
-3	16 ppb

*ppb = parts per billion (0.001 ug/g = 1 ppb)

Submitted by
C A Laboratories, Inc.


Michael E. Oatless
Laboratory Director


Michael B. Kelly
Laboratory Coordinator



STREAM POLLUTION CONTROL BOARD

1330 West Michigan Street
623-5467

September 18, 1978 ✓

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN 46217

Dear Mr. Lane:

Re: Renovation of Former McKinley-Thompson
Landfill at 3200 South Harding Street
Marion County.

This will acknowledge the receipt of your letter of September 11, 1978.

In accordance with condition #1 of my letter of August 9, 1978, and based on the analyses submitted, there is no objection to the use of sludge from lagoon #9 of the Belmont Sewage Treatment Plant for the above-referenced project.

You are reminded that all other conditions stated in my letter of August 9, 1978, are to be adhered to.

Very truly yours,

*Oral H. Hert*Oral H. Hert
Technical Secretary

GPDoyle/lgf

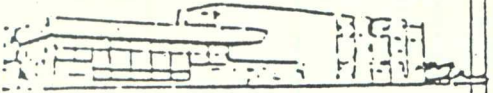
cc: Marion County Health and Hospital Corporation
Marion County Planning and Zoning
Marion County Department of Public Works ✓
Tousley-Bixler Construction Company

9/25/78

Copies:

ROAW (2)

GDT (2)



LANE RESTORATION

4600 BLUFF ROAD, INDIANAPOLIS, INDIANA 46217 • 317 788 4431

at Small - We Clean Them All

September 19, 1978 ✓

Mr. Guinn Doyle
Solid Waste Management Section
Indiana State Board of Health
1330 West Michigan Street
Indianapolis, Indiana 46206

Re: Renovation of former
McKinley Thompson Landfill at
3200 South Harding Street
Marion County

Gentlemen:

We have been receiving sludge at our 3200 South Harding Street site, from the Belmont Avenue Sewage Treatment plant since December, 1977. This sludge is being disposed of in Area 2 at the site in accordance with criteria outlined in your letters dated December 7, 1977 and August 9, 1978.

In our letter dated April 27, 1978 we requested approval to remove the solid sludge from lagoons 3, 4, 5, 7, 8, 9 and 10 to complete the renovation of Area 2.

It is now apparent that we do not have enough room in Area 2 to receive all of the sludge in these lagoons.

We are therefore submitting the enclosed plan to expand this operation into Area 1. We will continue to control the rain fall run-off into the sedimentation pond. We will follow all of the operation procedures previously agreed to.

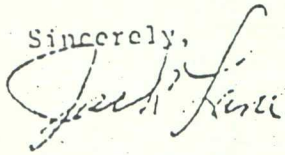
No sludge from these lagoons will be removed from the Sewage Treatment plant until leachate analysis for cyanide have been run by an independent laboratory, submitted to you and approval received from the Stream Pollution Control Board.

RECEIVED
INDIANA STATE BOARD OF HEALTH
SEP 22 1978

Solid Waste Management Section
Indiana State Board of Health
Attn: Mr. Guinn Doyle
Page 2

We appreciate your consideration and approval.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jack Lane", written over the word "Sincerely,".

W. Jack Lane

WJL/ljk

encl:

Supplement to Proposal for the Harding Street (Thompson) site subject to the disposal of contaminated material from the Belmont Sewage Treatment Lagoons.

PURPOSE OF SUPPLEMENT

The Toesley-Bixler Construction Company has indicated that there is an anticipated increase in volume of unsuitable material from the bottoms of the lagoons that are being cleaned out at the Belmont plant expansion. Area # 2 of the original proposal will not accommodate this increased volume. It is necessary to request approval for the anticipated disposal of the subject material into Area #1 of the original proposal.

REPORT OF PROGRESS

Portions of the material received into Area # 2 have dried to the point that a bulldozer has been used to compact the material without hanging up in the material. This was done in spite of the fact that this has been the wettest rain season in 20 years.

Once compacted, the material was covered with ash. It is still spungy and trucks cannot be driven over the material. The material does compact well once it dries enough.

Area # 2 will not be completed to final elevation by the deadline of November 1, 1978. If material is piled into the driveways (roadways) of Area # 2, rain water will not be able to drain out of the area and the sludge will not dry, but rather will continue to hold moisture and even become saturated.

We will continue to compact and cover the material taken into Area # 2, but we must request that the interim deadline of November 1, for completion of reaching final elevation in Area # 2 be altered.

ANTICIPATED DISPOSAL VOLUME

It has been determined that there will be 80,000 cubic yards of material available from the five remaining lagoons (3, 5, 7, and 10). Area # 2 will accommodate 25,000 additional yards and Area # 1 will handle 65,000 cubic yards.

It will now be possible to complete Areas 1 and 2 according to the master plan with the newly calculated volumes available from Belmont. All refuse received in the past at the old Thompson Landfill will now be covered and stabilized once all the material from Belmont is received at the Harding Street site.

8172451 2 2 1978

CHIEF OF ENGINEERING

SEP 25 2 24 PM '78

LANE RESTORATION

4600 BLUFF ROAD, INDIANAPOLIS, INDIANA 46217 • 317 786-4431

As Small - We Clean Them All

September 25, 1978

Mr. Guinn Doyle
Solid Waste Management Section
1330 West Michigan
Indianapolis, Indiana 46206

Re: Request for approval for the disposal of solid materials
from lagoons 3, 7, 8 and 10 of the Belmont Avenue Sewage
Treatment Plant.

Dear Mr. Doyle:

We are hereby requesting approval for the disposal of the above
referenced material at the 3200 South Harding Street Landfill.

Enclosed please find reports of analyses from leachate tests for
cyanide for each of the four lagoons from O. A. Laboratories. The
results are much lower than we anticipated and the explanation
for this can be found in the latest supplement for the project.

If you have any questions or comments please contact me.

Sincerely,

W. J. Lane

W. J. Lane

Enc.

RECEIVED
INDIANAPOLIS
SEP 25 2 23 PM '78

Supplement to Proposal for the Harding Street (Thompson) site subject to the disposal of contaminated material from the Belmont Sewage Treatment Lagoons.

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THE QUESTION OF CYANIDE CONCENTRATIONS

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METHOD OF CYANIDE LEACHATE ANALYSIS

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The new method of leachate preparation requires stirring the sample in water for 48 hours prior to analysis. Previous leachate preparations involved only three hours mixing in a blender.

Mr. Oliver of the Solid Waste Management Section should have a copy of this new leachate preparation method.

CONCLUSIONS

It has been obvious that personnel involved with approving this project at the State Board of Health have been reluctant to do so. There have been many delays, many questions and much time has passed since the original proposal for this project was made.

Much has been learned about the material and how it must be handled since the actual start of the project. Methods of handling as proposed and as specified in the ISBH approval letter have been changed:

- (1) The material cannot be applied in layers; it must be pushed into place and cannot be driven on immediately.

- (2) The material must be allowed to dry and must be able to drain in order to get a bulldozer on it later to compact and cover.
- (3) The unusually large amounts of rain have had a bad effect on the entire Belmont project and have caused delays.
- (4) The material has been effective in killing the underground fire, covering the previously exposed refuse and bringing the site to a useable final grade.
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This project can be considered "new territory" for all of us. It has aided the City of Indianapolis in their expansion project of the Belmont Plant and will eliminate an eyesore that would have been a perpetual fire and environmental problem.

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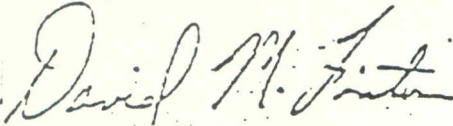
SUMMARY

We are requesting the following changes from our original proposal and resulting approval:

- (1) That Area #1 be approved for disposal of lagoon bottoms from the Belmont Expansion Project. Drainage from Area #1 will flow to the same runoff collection pond as Area #2. (See accompanying drawing).
- (2) That the deadline for reaching final elevation in Area #2 be moved ahead to June 1, 1979.
- (3) That all requirements as previously specified will be adhered to through the completion of the project.

We thank you for your consideration of this supplement and await your prompt response.

Respectfully submitted by:



David M. Finton, Pres.
Technosolve, Inc.

DMF/ljk

encl:

October 12, 1978

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN 46217

Dear Mr. Lane:

Re: Restoration of Former
McKinley-Thompson Landfill
3200 South Harding Street
Marion County

You are hereby advised that the review of your request of September 25, 1978, has been completed. The project consists of adding Area No. 1 to the operation covered in our letter of August 9, 1978. It is proposed that Area No. 1 will be brought to the specified elevation by using the dirt from lagoons 3, 5, 7 and 10 of the Belmont Sewage Treatment Plant. A final cover of lime/fly ash mixture will be applied. All surface drainage from Area No. 1 will be controlled during the operation by directing the surface water runoff in the existing holding pond.

It has been requested that a delay in bringing the Area No. 2 to final elevation be granted. The delay would permit better drainage and promote quicker drying.

There is no objection to the inclusion of Area No. 1, in the operation covered in our letter of August 9, 1978. Condition No. 5 of the letter of August 9, 1978, is amended to permit the completion of filling and covering in Area No. 1 by June 1, 1979.

You are reminded that if a nuisance or pollution condition is created, you will be required to take all necessary actions to correct the condition.

Very truly yours,

Oral H. Hert
Technical Secretary

Boyle/cgp

cc: Marion County Health and Hospital Corporation
Marion County Planning and Zoning
Marion County Department of Public Works
Tousley-Bixler Construction Company
Department of Natural Resources
Division of Lakes and Streams

cgpR/16 10/12/78

October 24, 1978 ✓

Mr. W. Jack Lane
Lane Restoration
4000 Bluff Road
Indianapolis, IN 46217

Dear Mr. Lane:

Re: Renovation of Former McKinley-Thompson
Landfill, 3200 South Harding Street
Marion County

This will acknowledge receipt of your letters of September 25
and October 12, 1978.

In accordance with condition #1 of my letter of August 9,
1978, and based on the analysis submitted, there is no objection to the
use of dirt/sludge material from lagoons 3, 5, 7, 8, and 10 of the
Belmont Sewage Treatment Plant for the above-referenced project.

You are reminded that all other conditions stated in my letter
of August 9, 1978, are to be adhered to.

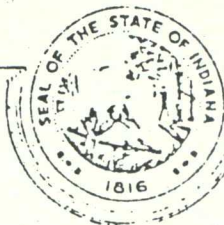
Very truly yours,

Oral H. Bert
Technical Secretary

CHToyle/rjs

cc: Marion County Health and Hospital Corporation
Marion County Planning and Zoning
Marion County Department of Public Works
Tousley-Bixler Construction Company

STATE OF INDIANA



INDIANAPOLIS 46206

STREAM POLLUTION CONTROL BOARD

1330 West Michigan Street

1/30/79.

January 29, 1979 ✓

Copies to
D. W. Hoppock
Ronald Riemer ROAR
Joseph Grigliotti GDT

VIA CERTIFIED MAIL

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN 46217

RECEIVED

JAN 31 1979

R.Q.A.W. & ASSOC. INC.

Dear Mr. Lane:

Re: Renovation of Former McKinley-
Thompson Landfill at
3200 South Harding Street
Marion County

This will acknowledge your phone conversation with Mr. Doyle of the Solid Waste Management Section on December 18, 1978, concerning the above-referenced subject.

You are hereby advised that the Stream Pollution Control Board's "non-objection" to the renovation plan for the McKinley-Thompson Landfill tendered on August 9, 1978, is subject to all the conditions included within that letter. Additionally, as a point of clarification, the material utilized as fill from the lagoons at the Belmont Avenue Sewage Treatment facility is defined the same as in your letter of April 27, 1978. "As they (Tousley-Bixler Construction Company) get near the bottom of each lagoon the material becomes too heavy to be pumped. It will then be bulldozed into piles or windrows, loaded into dump trucks with a front-end loader and removed from the site. Much of the clay originally used as a liner in the bottom and sides of each lagoon will be bulldozed in and mixed with the sludge making it a good material to be used in our reclamation project."

Records indicate that 80 percent of the material held in Lagoon No. 4 went to the McKinley-Thompson site. Certainly this is more than the lagoon bottoms as described above. Be advised that the intent of the August 9, 1978, letter applies only to this lagoon bottom material. A separate approval is required for disposal of sewage sludge exclusive of that described in the aforementioned renovation plan.

You are hereby directed to immediately stop depositing sludge from the Belmont Avenue Sewage Treatment Plant lagoons at the McKinley-Thompson landfill. No material other than the sludge/dirt mixture from the interface of the sludge and lagoon bottoms is to be deposited at the McKinley-Thompson site.

Because of your apparent failure to follow the renovation plan for the McKinley-Thompson landfill, you are to submit, in writing, the following within ten working days from receipt of this letter:

1. The measures which will be instituted to correct the deposition of unauthorized materials.
2. The measures that will be instituted to insure that only material approved, sludge/dirt mixture from the bottoms of the lagoons, is hauled to and deposited at the McKinley-Thompson site.

Failure to reply will necessitate that the Stream Pollution Control Board reevaluate its nonobjection position on the renovation project.

If you have any questions, please contact Mr. Eggleston at AC 317/633-0176.

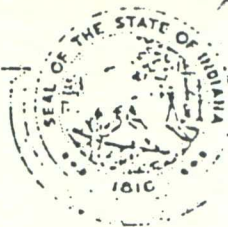
Very truly yours,

Oral H. Hert

Oral H. Hert
Technical Secretary

JMEggleston/rm

cc: Marion County Health and Hospital Corporation
Indianapolis Department of Public Works ✓
Tousley-Bixler Construction Company
Techno-Solve
Robert Penno



STREAM POLLUTION CONTROL BOARD

2/7/79

February 2, 1979 ✓

RECEIVED

CC:

Ron R. R. R. R. (2)

VIA CERTIFIED MAIL

FEB 9 1979

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN. 46217

Dear Mr. Lane:

RE: Renovation of Former McKinley-
Thompson Landfill, 3200 South
Harding Street, Marion County

This will acknowledge the receipt of your letter of January 31, 1979, and the meeting of January 31, 1979, between representatives of the Indiana State Board of Health, the City of Indianapolis, Tousley-Bixler Construction Company, Technosolve, and yourself.

As was explained at the meeting, the only material which was approved by my letter of August 9, 1978, and confirmed by my letter of January 22, 1979, was the sludge/dirt mixture from the bottom of lagoons 3, 4, 5, 7, 8, 9, and 10 of the Belmont Sewage Treatment Plant. It was confirmed at the January 31, 1979 meeting that sewage sludge was taken to the McKinley-Thompson site.

In view of the City of Indianapolis' construction schedule for the advanced wastewater treatment plant, it is our belief that the City of Indianapolis needs some consideration so that construction of the AWT plant can proceed. Therefore, no objection will be raised to the disposal of the sewage sludge and sludge/dirt mixture remaining in lagoon 3 on Area 2 of the McKinley-Thompson site. All the sewage sludge in lagoon 7 is to be disposed of by the City of Indianapolis in the manner previously approved and not deposited at the McKinley-Thompson site. It is to be clearly understood that this action in no way approves the disposal of sewage sludge from lagoons 3, 4, 5, 7, 8, 9, and 10 at the McKinley-Thompson site which occurred prior to January 31, 1979.

It is expected that the sewage sludge from lagoon 3 will be solidified with fly ash at the McKinley-Thompson site and that Area 2 will be completed by June 1, 1979. It is also expected that the sewage

sludge disposed of in Area 1 will be covered with suitable material
and that Area 1 will be completed by June 1, 1979.

Very truly yours,

Oral H. Hert

Oral H. Hert
Technical Secretary

GDoyle/dw

cc: Frederick Lind, Tousley-Bixler
C. Michael Robson, Indianapolis Department of Public Works ✓
Robert Penno
Marion County Health and Hospital Corporation

WATER SAMPLE IDENTIFICATION SHEET

Sample site McKisley Thompson Site
3434 S. Harding
Station No. #2
 Sample 9 22 78 2:30
 MO. DAY YR. A.M./P.M.
11-12 13-14 15-16
 Supervisor David Leman
 Collector(s) George Oliver
 Delivered to lab 9 27 78
 MO. DAY YR. A.M./P.M.
George Oliver (1976)

SPCS NO: 1-7 OUTFALL 8-10
 1. NPDES 18 Category of Discharge
 2. SPC 15
 3. WQ Study
 4. Pollution complaint
 5. Fish kill investigation
 1. Industry
 2. Semi-Public
 3. Municipal
 4. Federal
 5. Public Water Supply
 6. State operation
 7. Other
 Sample Type
 1. Grab
 2. 24-hour comp.
 3. 8-hour comp.
 4. 24-hour flow comp.
 5. 8-hour flow comp.
 Sample Interval 20
 0 - at outfall
 1 - above outfall
 2 - below outfall
 Stream miles from outfall 22-26

LAB INFORMATION

Lab No. 2203 by 1 E
 Rec'd SEP 27 1978 3:50 A.M.
 MO DAY YR P.M.
 by 1 T

CONTAINER TYPE & SIZE

Glass 500 ml 1 liter total no. 1
 plastic 2 liter other _____

Standard method followed? all some none

TEMPERATURE & PRESERVATION

Samples refig. or iced? all some none
 Chlorinated samples? all some none
 Standard method followed? all some none
 Teflon capped Foil capped Solvent rinsed
 TEMP. _____

Reported out:

V OCT 10 1978

WATER LAB

CODE	PARAMETER	UNIT	LAB DATA
28-32 00410	Alkalinity Total CaCO ₃	mg/l	34-41
00610	Ammonia-N	mg/l	
01000	Arsenic	mg/l	
00310	BOD ₅	mg/l	
01027	Cadmium	mg/l	
00940	Chlorides	mg/l	
01032	Chromium-Hex	mg/l	
01034	Chromium-Tot	mg/l	
00340	COD	mg/l	
01042	Copper	mg/l	
00720	Cyanide-CN	mg/l	0.04/1
00951	Fluoride	mg/l	
01045	Iron-Total	mg/l	
01051	Lead	mg/l	
01055	Manganese	mg/l	
71900	Mercury-Total	PPB	
01065	Nickel	mg/l	
00630	NO ₂ +NO ₃ -N	mg/l	
00550	Oil & Grease	mg/l	
00403	pH (lab)		
32730	Phenol	mg/l	
00670	Phosphorus-P	mg/l	
00547	Solids - Susp	mg/l	
70401	Solids (total)	mg/l	39.2 % W/W
00945	Sulfate	mg/l	
00625	TKN	mg/l	
00680	TOC	mg/l	
01092	Zinc	mg/l	
74055	Fecal coliforms	100ml	
RESULT ON LEACHATE LEACHATE PREPARED 100 gms/500 ml. DE ION- 1250 WATER			

D 5202

GENERAL PROCEDURE FOR PREPARING A LEACHATE OF A SOLID

1. Find out from the engineer if the sample is to be ground-up or not, then weigh some convenient amount of sample (~~10-20~~ ¹⁰⁰ gm) into a dish. *Wet 5000*
2. Place the sample in a flask, add distilled water (~~500-1000~~ ⁵⁰⁰ ml), and place on a magnetic stirrer for 24 hours (or some other period that may be specified by the engineer who submitted the sample).
3. Filter the leachate.
4. Retain the leachate (filtrate) in a capped bottle, and make the determinations for all parameters using this solution.
5. Calculate all results on the leachate. Designate amount of material leached and volume of water used. *40 Preserve for CN*
6. Record all steps, times, weights, etc. throughout the entire process.
7. This type of sample should have a high priority in the order of analysis.

NOTE: Distilled deionized water should be used when metal analyses are requested.

1a) 100 gms sample
2 a) 500 ml deionized water
b) 24 hrs Stir

4. Preserve with NaOH for CN

per L. Doyle
10-2-78

3-19-76
C.T.H.

03203

GENERAL PROCEDURE FOR PREPARING A LEACHATE OF A SOLID

1. Find out from the engineer if the sample is to be ground-up or not, then weigh some convenient amount of sample (~~10-20~~ gm) into a dish.
2. Place the sample in a flask, add distilled water (~~500-1000~~ ml), and place on a magnetic stirrer for 24 hours (or some other period that may be specified by the engineer who submitted the sample).
3. Filter the leachate.
4. Retain the leachate (filtrate) in a capped bottle, and make the determinations for all parameters using this solution.
4a Preserve for W
5. Calculate all results on the leachate. Designate amount of material leached and volume of water used.
6. Record all steps, times, weights, etc. throughout the entire process.
7. This type of sample should have a high priority in the order of analysis.

NOTE: Distilled deionized water should be used when metal analyses are requested.

1. a) 100 gms sample
2. a) 500 ml dist. deionized water
b) Stir 24 hrs

Preserve with Na OH for C.H.

Per R. Doyle
10-2-78
C.H.
3-19-76
C.T.H.

Indiana State Board of Health
Division of Sanitary Engineering
Solid Waste Management Section
Refuse Facility Inspection Report

DW

DATE 11/29/79	TIME 2:30	COUNTY Marion
CITY Lane Restoration		CONSTRUCTION PERMIT Yes <input type="checkbox"/> No <input type="checkbox"/>
LOCATION 1100 Bluff Rd		OPERATING PERMIT Yes <input type="checkbox"/> No <input type="checkbox"/>
TYPE OF OPERATION: Resource Recovery <input type="checkbox"/> Landfill <input type="checkbox"/> Other <input checked="" type="checkbox"/> Variance		INSPECTED BY Ken Schmitt <i>Ken Schmitt</i>

GENERAL STANDARDS			
ON-SITE ROADS	3	12. REFUSE CONTAINERS	2
EMPLOYEE FACILITIES	2	13. ENTRANCE SIGN	2
ANIMAL FEEDING	5	14. SALVAGE MATERIALS	2
AIR QUALITY		VECTORS	
MONITORING WELL SAMPLING	3	15. VECTORS	2
LIQUID DRAINAGE	4	16. ROLL BARS & FIRE EXTING.	2
REFUSE PLACED IN WATER	5	17. PROVISIONS TO EXTINGUISH REFUSE FIRES	2
LEACHATE ON-SITE	4	18. SCAVENGING	3
LEACHATE OFF-SITE	5	19. COMMUNICATIONS	2
WATER QUALITY		20. TRAFFIC PATTERNS	2
OPEN BURNING	5	COVER APPLICATION	
SPRINKLING		21. SPREADING & COMPACTING	4
COLLECTING LITTER	3	*22. DAILY COVER	5
LIMITED ACCESS	2	23. FINAL COVER	4
		TOTAL DEMERIT SCORE	
		<div>ACCEPTABLE <input checked="" type="checkbox"/></div> <div>UNACCEPTABLE <input type="checkbox"/></div>	

Based on an inspection this day, the items circled above identify the violations in operations or facility which must be corrected by the next routine inspection or such shorter period of time as may be specified in writing by the regulatory authority.

*Major violations requiring immediate correction and resulting in an unacceptable rating.

REMARKS:

Sledge has been deposited today

No evidence of fly ash disposal (snow cover).

*Ash must be mixed with the sledge periodically -
More often.*

Responsible Party

Operator

Indiana State Board of Health
Division of Sanitary Engineering
Solid Waste Management Section
Refuse Facility Inspection Report

DATE 1/26/79	TIME 12:30	COUNTY MADISON
FACILITY McKeeley Thompson		CONSTRUCTION PERMIT Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
LOCATION 3200 S. Harding		OPERATING PERMIT Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
TYPE OF OPERATION: <input type="checkbox"/> Resource Recovery <input type="checkbox"/> Landfill <input type="checkbox"/> Transfer Facility Other VARIANCE		INSPECTED BY Harold Olin - Gary P. Schmidt

GENERAL STANDARDS					
ON-SITE ROADS	3	12. REFUSE CONTAINERS	2	24. FINAL GRADING & SEEDING	4
EMPLOYEE FACILITIES	2	13. ENTRANCE SIGN	2	HAZARDOUS & SPECIAL WASTE	
3. ANIMAL FEEDING	5	14. SALVAGE MATERIALS	2		*25. UNAPPROVED HAZARDOUS WASTE
		VECTORS		*26. IMPROPER HAZARDOUS WASTE DISPOSAL	5
		15. VECTORS	2	27. BULKY WASTE	2
WATER QUALITY		SAFETY		28. DEAD ANIMALS	2
4. MONITORING WELL SAMPLING Date _____	3	16. ROLL BARS & FIRE EXTING.	2	EQUIPMENT & RECORDS	
SURFACE DRAINAGE	4	17. PROVISIONS TO EXTINGUISH REFUSE FIRES	2		29. OPERATING EQUIPMENT
*6. REFUSE PLACED IN WATER	5	18. SCAVENGING	3	30. APPROVED PLANS	2
LEACHATE ON-SITE	4	19. COMMUNICATIONS	2	*31. DEVIATION FROM APPROVED PLANS	5
*8. LEACHATE OFF-SITE	5	20. TRAFFIC PATTERNS	2	TOTAL DEMERIT SCORE <div>ACCEPTABLE</div> <div>UNACCEPTABLE</div>	
AIR QUALITY		COVER APPLICATION			
*9. OPEN BURNING	5	21. SPREADING & COMPACTING	4		
ESTHETICS		*22. DAILY COVER	5		
10. BLOWING LITTER	3	23. FINAL COVER	4		
LIMITED ACCESS	2				

Based on an inspection this day, the items circled above identify the violations in operations or facility which must be corrected by the next routine inspection or such shorter period of time as may be specified in writing by the regulatory authority.

* Major violations requiring immediate correction and resulting in an unacceptable rating.

COMMENTS: The site is active today - Sludge from Lagoon #3 is deposited on site.

No operational problems evident.

Received by: _____

Responsible Party

116

Operator

Renovation

Station No. /

Supervisor 11-12 13-14 15-16 17-18 19-20 21-22 23-24 25-26 27-28 29-30 31-32 33-34 35-36 37-38 39-40 41-42 43-44 45-46 47-48 49-50 51-52 53-54 55-56 57-58 59-60 61-62 63-64 65-66 67-68 69-70 71-72 73-74 75-76 77-78 79-80 81-82 83-84 85-86 87-88 89-90 91-92 93-94 95-96 97-98 99-100 101-102 103-104 105-106 107-108 109-110 111-112 113-114 115-116 117-118 119-120 121-122 123-124 125-126 127-128 129-130 131-132 133-134 135-136 137-138 139-140 141-142 143-144 145-146 147-148 149-150 151-152 153-154 155-156 157-158 159-160 161-162 163-164 165-166 167-168 169-170 171-172 173-174 175-176 177-178 179-180 181-182 183-184 185-186 187-188 189-190 191-192 193-194 195-196 197-198 199-200 201-202 203-204 205-206 207-208 209-210 211-212 213-214 215-216 217-218 219-220 221-222 223-224 225-226 227-228 229-230 231-232 233-234 235-236 237-238 239-240 241-242 243-244 245-246 247-248 249-250 251-252 253-254 255-256 257-258 259-260 261-262 263-264 265-266 267-268 269-270 271-272 273-274 275-276 277-278 279-280 281-282 283-284 285-286 287-288 289-290 291-292 293-294 295-296 297-298 299-300 301-302 303-304 305-306 307-308 309-310 311-312 313-314 315-316 317-318 319-320 321-322 323-324 325-326 327-328 329-330 331-332 333-334 335-336 337-338 339-340 341-342 343-344 345-346 347-348 349-350 351-352 353-354 355-356 357-358 359-360 361-362 363-364 365-366 367-368 369-370 371-372 373-374 375-376 377-378 379-380 381-382 383-384 385-386 387-388 389-390 391-392 393-394 395-396 397-398 399-400 401-402 403-404 405-406 407-408 409-410 411-412 413-414 415-416 417-418 419-420 421-422 423-424 425-426 427-428 429-430 431-432 433-434 435-436 437-438 439-440 441-442 443-444 445-446 447-448 449-450 451-452 453-454 455-456 457-458 459-460 461-462 463-464 465-466 467-468 469-470 471-472 473-474 475-476 477-478 479-480 481-482 483-484 485-486 487-488 489-490 491-492 493-494 495-496 497-498 499-500 501-502 503-504 505-506 507-508 509-510 511-512 513-514 515-516 517-518 519-520 521-522 523-524 525-526 527-528 529-530 531-532 533-534 535-536 537-538 539-540 541-542 543-544 545-546 547-548 549-550 551-552 553-554 555-556 557-558 559-560 561-562 563-564 565-566 567-568 569-570 571-572 573-574 575-576 577-578 579-580 581-582 583-584 585-586 587-588 589-590 591-592 593-594 595-596 597-598 599-600 601-602 603-604 605-606 607-608 609-610 611-612 613-614 615-616 617-618 619-620 621-622 623-624 625-626 627-628 629-630 631-632 633-634 635-636 637-638 639-640 641-642 643-644 645-646 647-648 649-650 651-652 653-654 65

Collector(s) Ernest Oliver

by Tr. Kelly - Return to Lewis Valley

NTDZS NO. 1 - 7 OUTFALL 8 - 10

- | 17 | 18 | Category of Discharge |
|----------------------------|----|-----------------------|
| 1. NPDES | | 1. Industry |
| 2. SPC 15 | | 2. Semi-Public |
| 3. WQ Study | | 3. Municipal |
| 4. Pollution complaint | | 4. Federal |
| 5. Fish kill investigation | | |

Sample Type

19

1. Grab
2. 24-hour comp.
3. 8-hour comp.
4. 24-hour flow comp.
5. 8-hour flow comp.

Sample Interval

20

0 - at outfall	
21 1 - above outfall	Stream miles from outfall
2 - below outfall	

22-26

Lab No. 2671 by VED

Rec'd NOV 14 1978 10:00 AM
FM

by A 72

glass	500 ml	1 liter	total no. <u>1</u>
plastic	2 liter	other	

Standard method followed? all some none

Samples refrig. or load?	all	some	<u>none</u>
Chlorinated samples?	all	none	none
Standard method followed?	all	some	none
Teflon capped	Foil capped		Solvent rinse
TEMP.	o	o	

Reported out:

REPORTED

SB1165-020
State Form 1490

WATER LABORATORY
IND. STATE DE. OF HEALTH

CODE	PARAMETER	UNIT	LAB DATA
25-32 00410	Alkalinity Total CaCO_3	mg/l	84-41
00610	Ammonia-N	mg/l	
01000	Arsenic	mg/l	
00310	BOD ₅	mg/l	
01027	Cadmium	mg/l	
00940	Chlorides	mg/l	
01032	Chromium-Hex	mg/l	
01034	Chromium-Tot	mg/l	
00340	COD	mg/l	
01042	Copper	mg/l	
00720	Cyanide-CN	mg/l	✓ 20.00 /
00951	Fluoride	mg/l	ON L EOCART
01045	Iron-Total	mg/l	
01051	Lead	mg/l	
01055	Manganese	mg/l	
71900	Mercury-Total	PPB	
01065	Nickel	mg/l	
00630	$\text{NO}_2 + \text{NO}_3 - \text{N}$	mg/l	
00550	Oil & Grease	mg/l	
00403	pH (lab)		
32730	Phenol	mg/l	
00870	Phosphorus-P	mg/l	
00647	Solids - Susp	mg/l	
70401	Solids (total)	mg/l	✓ 149.2 mg/l ✓
00945	Sulfate	mg/l	
00625	TKN	mg/l	
00680	TOC	mg/l	
01092	Zinc	mg/l	
74055	Fecal coliform	100ml	

Spectro Cyanide Spectro

Trachato	Guanid	Trachato
100 gms	500 ml	

Card No. 27	1	1	1	1	1	1
Para. No. 28-32	00001	00010	00300	00400	00050	00060
	Time, hr	Temp. C	DO	pH	Flow, MGD	Res. Chl. mg/l
34-41						
42-49						
50-57						
58-65						
Card No. 27	2	2	2	2	2	2
Para. No. 28-32	00001	00010	00300	00400	00050	00060
34-41						
42-49						
50-57						
58-65						

Card No. 27	3	3	3	3	3	3
Para. No. 28-32	00001	00010	00300	00400	00050	00060
34-41						
42-49						
50-57						
58-65						

PRESERVATION OF SAMPLES

Determination	Preservative	Size & Type of Container
General Chemistry:		
Acidity	MBAS	
Alkalinity	Nitrite-N	
BOD	Phosphorus, Ortho	
Calcium	pH	
Chloride	Residues	Iced or Refrigerated
Chlorine Residual		
Chromium, Hex.	Specific Cond.	
Color	Sulfate	
Fluoride	Tannin, Lignin	
Hardness	Turbidity	
Odor		Iced or Refrig.
Pesticides		
PCB		Iced or Refrig.
Phthalate		
Metals:		
Aluminum	Manganese	
Arsenic	Nickel	
Cadmium	Potassium	
Chromium, Total	Sodium	5 ml HNO ₃ /liter
Copper	Silver	
Iron	Zinc	
Lead		
Nutrients:		
Nitrogen	COD	
Ammonia	TOC	
Nitrate	Phosphorus, Total	2 ml 50% H ₂ SO ₄ /liter
Organic Total		
Cyanide		1 ml 50% NaOH/liter
Mercury		20 ml (2.5% K ₂ Cr ₂ O ₇ in 25% HNO ₃)/liter
Sulfide		2 ml Zn(C ₂ H ₃ O ₂) ₂ (2N) per liter.
Oil & Grease		2 ml 50% H ₂ SO ₄ /500 ml
Phenol		2 ml 50% H ₂ SO ₄ /liter

The preservatives used conform with EPA recommended procedures.

Storage at low temperature is perhaps the best way to preserve samples until the next day. Chemical preservatives are to be used only when they are shown not to interfere with the examination to be made. When used, they should be added to the sample bottle and in the exact amount per volume of sample recommended.

#3411

GENERAL PROCEDURE FOR PREPARING A LEACHATE OF A SOLID

1. Find out from the engineer if the sample is to be ground-up or not, then weigh some convenient amount of sample (10 - 20 gm) into a dish.
2. Place the sample in a flask, add distilled water (500 - 1000 ml), and place on a magnetic stirrer for 2 hours (or some other period that may be specified by the engineer who submitted the sample).
3. Filter the leachate.
4. Retain the leachate (filtrate) in a capped bottle, and make the determinations for ~~a~~ parameters using this solution.
5. Calculate all results on the leachate. Designate amount of material leached and volume of water used.
6. Record all steps, times, weights, etc. throughout the entire process.
7. This type of sample should have a high priority in the order of analysis.

NOTE: Distilled deionized water should be used when metal analyses are requested.

LEACHATE PREPARED = 100 gms / 500 ml D.W.

3-19-76
C.T.H.

WATER SAMPLE IDENTIFICATION SHEET

FILE: McKinley Thompson
 10/20/78
 120

Sample Site McKinley Thompson Site
434 S. Harding
 Current Disposal Station No. #1
 Sample Date 9 22 78 2:30
 MO. DAY YR. AM/P.M.
 Supervisor David L. Luman
 Collector(s) George Oliver
 Delivered to lab 9 27 78
 MO. DAY YR. AM/P.M.
 by George Oliver - GLO
 S NO: 1-7 OUTFALL 8-10

1. NPDES
2. SPC 15
3. WQ Study
4. Pollution complaint
5. Fish kill investigation

18

- Category of Discharge
1. Industry
 2. Semi-Public
 3. Municipal
 4. Federal
 5. Public Water Supply
 6. State operation
 7. Other

Sample Type

1. Grab
2. 24-hour comp.
3. 8-hour comp.
4. 24-hour flow comp.
5. 8-hour flow comp.

Sample Interval

20

- 0 - at outfall
- 1 - above outfall
- 2 - below outfall

Stream miles from outfall

22-26

LAB INFORMATION

Lab No. 3702 by JFL
 Rec'd 8/26/78 3:50 A.M.
 MO SEP DAY YR P.M.
 by JFL

CONTAINER TYPE & SIZE

glass 500 ml 1 liter total no. 1
 plastic 2 liter other _____

Standard method followed? ☒ all ☐ some ☐ none

TEMPERATURE & PRESERVATION

Samples refrigerated or iced? ☒ all ☐ some ☐ none

Chlorinated samples? ☒ all ☐ some ☐ none

Standard method followed? ☒ all ☐ some ☐ none

Teflon capped Foil capped Solvent rinsed

TEMP. _____

Reported out: _____

OCT 20 1978

CODE	PARAMETER	UNIT	LAB DATA
28-32 00410	Alkalinity Total CaCO ₃	mg/l	31-41
00610	Ammonia-N	mg/l	
01000	Arsenic	mg/l	
00310	BOD ₅	mg/l	
01027	Cadmium	mg/l	
00940	Chlorides	mg/l	
01032	Chromium-Hex	mg/l	
01034	Chromium-Tot	mg/l	
00340	COD	mg/l	
01042	Copper	mg/l	
00720	Cyanide-CN	mg/l	10.100
00951	Fluoride	mg/l	
01045	Iron-Total	mg/l	
01051	Lead	mg/l	
01055	Manganese	mg/l	
71900	Mercury-Total	PPB	
01065	Nickel	mg/l	
00630	NO ₂ +NO ₃ -N	mg/l	
00550	Oil & Grease	mg/l	
00403	pH (lab)		
32730	Phenol	mg/l	
00670	Phosphorus-P	mg/l	
00547	Solids - Susp	mg/l	
70401	Solids (total)	mg/l	86.0% <u>1/1</u>
00945	Sulfate	mg/l	
00625	TKN	mg/l	
00680	TOC	mg/l	
01092	Zinc	mg/l	
74055	Fecal coliform	100ml	

* RESULTS ON LEACHATE.

LEACHATE PAPER PAIL

100 gm / 100 ml DEION-

LEACH WATER

Card No.	1	1	1	1	1	1
Para. No.	00001	00010	00300	00400	50050	50060
Time, hr		Temp. C	DO	pH	Flow, MGD	Res. Chl. mg/l
4-41						
42-49						
50-57						
58-65						
Card No.	2	2	2	2	2	2
Para. No.	00001	00010	00300	00400	50050	50060
4-41						
42-49						
50-57						
58-65						

Card No.	3	3	3	3	3	3
Para. No.	00001	00010	00300	00400	50050	50060
34-41						
42-49						
50-57						
58-65						

PRESERVATION OF SAMPLES

Termination	Preservative	Size & Type of Container
General Chemistry:		
Acidity	MBAS	
Alkalinity	Nitrite-N	
Ammonia	Phosphorus, Ortho	
Calcium Chloride	pH	
Chlorine Residual	Residues	Iced or Refrigerated
Copper, Hex.	Specific Cond.	
Fluoride	Sulfate	
Hardness	Tannin, Lignin	
	Turbidity	
		Iced or Refrig.
		500 ml glass
Pesticides		
PCB		Iced or Refrig.
Phthalate		Special solvent rinsed glass
Metals:		
Aluminum	Manganese	
Arsenic	Nickel	
Cadmium	Potassium	
Chromium, Total	Sodium	5 ml HNO ₃ /liter
Copper	Silver	1 liter plastic
Iron	Zinc	
Lead		
Organics:		
Nitrogen	COD	
Ammonia	TOC	
Nitrate	Phosphorus, Total	2 ml 50% H ₂ SO ₄ /liter
Organic Total		1 liter plastic
Cyanide		1 ml 50% NaOH/liter
		1 liter plastic
Mercury		20 ml (2.5% K ₂ Cr ₂ O ₇ in 25% HNO ₃)/liter
		1 liter plastic
Sulfide		2 ml Zn(C ₂ H ₃ O ₂) ₂ (2N) per liter.
		1 liter plastic
Oil & Grease		2 ml 50% H ₂ SO ₄ /500 ml
Resol		500 ml glass
		2 ml 50% H ₂ SO ₄ /liter
		1 liter plastic

The preservatives used conform with EPA recommended procedures.

Storage at low temperature is perhaps the best way to preserve samples until the next day. Chemical preservatives are to be used only when they are shown not to interfere with the examination to be made. When used, they should be added to the sample bottle and in the exact amount per volume of sample recommended.

Indiana State Board of Health
Division of Sanitary Engineering
Solid Waste Management Section
Refuse Facility Inspection Report

DM

DATE <i>11/27/78</i>	TIME <i>2:30</i>	COUNTY <i>MADISON</i>
FACILITY <i>McKinley Thompson Site</i>		CONSTRUCTION PERMIT Yes <input type="checkbox"/> No <input type="checkbox"/>
LOCATION <i>Harding ST</i>		OPERATING PERMIT Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TYPE OF OPERATION: Landfill <input type="checkbox"/> Transfer Facility <input type="checkbox"/> Resource Recovery <input type="checkbox"/> Other <input type="checkbox"/>		INSPECTED BY <i>J. H. [Signature]</i> <i>[Signature]</i>

GENERAL STANDARDS							
1. ON-SITE ROADS	3	12. REFUSE CONTAINERS	2	24. FINAL GRADING & SEEDING	4		
2. EMPLOYEE FACILITIES	2	13. ENTRANCE SIGN	2	HAZARDOUS & SPECIAL WASTE			
3. ANIMAL FEEDING	5	14. SALVAGE MATERIALS	2	*25. UNAPPROVED HAZARDOUS WASTE	5		
		VECTORS		*26. IMPROPER HAZARDOUS WASTE DISPOSAL	5		
WATER QUALITY		15. VECTORS	2	27. BULKY WASTE	2		
4. MONITORING WELL SAMPLING Date _____	3	SAFETY		28. DEAD ANIMALS	2		
5. SURFACE DRAINAGE	4	16. ROLL BARS & FIRE EXTING.	2	EQUIPMENT & RECORDS			
*6. REFUSE PLACED IN WATER	5	17. PROVISIONS TO EXTINGUISH REFUSE FIRES	2	29. OPERATING EQUIPMENT	2		
7. LEACHATE ON-SITE	4	18. SCAVENGING	3	30. APPROVED PLANS	2		
8. LEACHATE OFF-SITE	5	19. COMMUNICATIONS	2	*31. DEVIATION FROM APPROVED PLANS	5		
		20. TRAFFIC PATTERNS	2				
AIR QUALITY		COVER APPLICATION		<div style="text-align: right;"> TOTAL DEMERIT SCORE <div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; right: 0; width: 50px; height: 50px; border: 1px solid black; transform: rotate(45deg);"></div> </div> </div>			
9. OPEN BURNING	5	21. SPREADING & COMPACTING	4				
AESTHETICS		*22. DAILY COVER	5				
10. BLOWING LITTER	3	23. FINAL COVER	4				
11. LIMITED ACCESS	2			<div style="text-align: center;"> ACCEPTABLE <hr/> UNACCEPTABLE </div>			

Based on an inspection this day, the items circled above identify the violations in operations or facility which must be corrected by the next routine inspection or such shorter period of time as may be specified in writing by the regulatory authority.

* Major violations requiring immediate correction and resulting in an unacceptable rating.

COMMENTS: _____

The smoldering demolition material and soil erosion have not been corrected to date - A letter addressing this will be sent by Mr. Lane.

Filling of ash on area #1 is well underway and nearing completion.

The site is not active today.

Received by: *W. J. Lane* Responsible Party

Operator

122

Indiana State Board of Health
Division of Sanitary Engineering
Solid Waste Management Section
Refuse Facility Inspection Report

DATE <u>4/11/78</u>		TIME <u>2 Am</u>		COUNTY <u>Madison</u>	
FACILITY <u>Thompson Fill Penetration</u>		CONSTRUCTION PERMIT <u>SIS 1770000</u>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
LOCATION <u>S. Hardline St.</u>		OPERATING PERMIT		Yes <input type="checkbox"/> No <input type="checkbox"/>	
TYPE OF OPERATION: <u>Landfill</u>		Transfer Facility		INSPECTED BY <u>Stan Majors</u>	
Resource Recovery		Other <u>Fly Ash-Lime Sludge Disposal</u>		<u>G. Clark</u> <u>D. Kumar</u>	

GENERAL STANDARDS						
1. ON-SITE ROADS PASSABLE	3	12. REFUSE CONTAINERS CLEAN	2	24. FINAL GRADING & SEEDING	4	
2. EMPLOYEE FACILITIES SUITABLE	2	13. ENTRANCE SIGN	2	HAZARDOUS & SPECIAL WASTE		
*3. ANIMAL FEEDING	5	14. SALVAGE PROPERLY STORED	2		*25. UNAPPROVED HAZARDOUS WASTE	5
WATER QUALITY		VECTORS		*26. APPROVED HAZARDOUS WASTE PROPERLY DISPOSED	5	
	4. MONITORING WELL SAMPLING Date _____	3	15. VECTOR CONTROL	2	27. BULKY WASTE	2
	5. SURFACE DRAINAGE ADEQUATE	4	SAFETY		28. DEAD ANIMALS	2
	*6. REFUSE PLACED IN WATER	5		16. ROLL BARS & FIRE EXTING.	2	EQUIPMENT & RECORDS
7. LEACHATE PONDED ON-SITE	4	17. PROVISIONS TO EXTINGUISH REFUSE FIRES	2	29. ADEQUATE EQUIPMENT	2	
*8. LEACHATE FLOWING OFF-SITE	5	18. SCAVENGING PROHIBITED	3	30. APPROVED PLANS ON-SITE	2	
AIR QUALITY		19. COMMUNICATIONS	2	*31. DEVIATION FROM APPROVED PLANS	5	
	*9. OPEN BURNING	5	20. ORDERLY TRAFFIC PATTERNS	2		
AESTHETICS		COVER APPLICATION		TOTAL SCORE		
	10. CONTROL OF BLOWING LITTER	3	21. SPREADING & COMPACTING	4	("100" less weight of items violated)	
	11. LIMITED ACCESS	2	*22. DAILY COVER	5	ACCEPTABLE	<input checked="" type="checkbox"/>
		23. FINAL COVER	4	UNACCEPTABLE	<input type="checkbox"/>	

Based on an inspection this day, the items circled above identify the violations in operations or facility which must be corrected by the next routine inspection or such shorter period of time as may be specified in writing by the regulatory authority.

*Critical items requiring immediate correction and resulting in an unacceptable rating.

COMMENTS:

- 1- Diversion ditch not complete along SE boundary - must be finished.
- 2- SE edge not properly contoured and covered with lime-fly ash mixture.
- 3- lime slurry running off fill. Must contain on site.

Received by: _____

Responsible Party

Operator

Indiana State Board of Health
Division of Sanitary Engineering
Solid Waste Management Section
Refuse Facility Inspection Report

Jim

DATE <u>11/10/78</u>	TIME <u>2:30</u>	COUNTY <u>Morris</u>
FACILITY <u>McKinley Thompson Site (Land Renovation)</u>		CONSTRUCTION PERMIT Yes <input type="checkbox"/> No <input type="checkbox"/>
LOCATION <u>3400 Harding Ave</u>		OPERATING PERMIT Yes <input checked="" type="checkbox"/> # <u>11/10/78</u>
TYPE OF OPERATION: <u>Landfill</u> <input type="checkbox"/> <u>Transfer Facility</u> <input type="checkbox"/> <u>Other</u> <input type="checkbox"/>		INSPECTED BY <u>[Signature]</u>
Resource Recovery <input type="checkbox"/>		

GENERAL STANDARDS					
1. ON-SITE ROADS	3	12. REFUSE CONTAINERS	2	24. FINAL GRADING & SEEDING	4
2. EMPLOYEE FACILITIES	2	13. ENTRANCE SIGN	2	HAZARDOUS & SPECIAL WASTE	
3. ANIMAL FEEDING	5	14. SALVAGE MATERIALS	2		*25. UNAPPROVED HAZARDOUS WASTE
WATER QUALITY		VECTORS		*26. IMPROPER HAZARDOUS WASTE DISPOSAL	5
		15. VECTORS	2	27. BULKY WASTE	2
		SAFETY		28. DEAD ANIMALS	2
		16. ROLL BARS & FIRE EXTING.	2	EQUIPMENT & RECORDS	
4. MONITORING WELL SAMPLING Date _____	3	17. PROVISIONS TO EXTINGUISH REFUSE FIRES	2	29. OPERATING EQUIPMENT	2
5. SURFACE DRAINAGE	4	18. SCAVENGING	3	30. APPROVED PLANS	2
*6. REFUSE PLACED IN WATER	5	19. COMMUNICATIONS	2	*31. DEVIATION FROM APPROVED PLANS	5
7. LEACHATE ON-SITE	4	20. TRAFFIC PATTERNS	2		
8. LEACHATE OFF-SITE	5				
AIR QUALITY		COVER APPLICATION		TOTAL DEMERIT SCORE	
9. OPEN BURNING	5	21. SPREADING & COMPACTING	4	<div>ACCEPTABLE</div> <div>UNACCEPTABLE</div>	
AESTHETICS		*22. DAILY COVER	5		
10. BLOWING LITTER	3	23. FINAL COVER	4		
11. LIMITED ACCESS	2				

Based on an inspection this day, the items circled above identify the violations in operations or facility which must be corrected by the next routine inspection or such shorter period of time as may be specified in writing by the regulatory authority.

*Major violations requiring immediate correction and resulting in an unacceptable rating.

COMMENTS:

The smoldering fire and soil erosion on the south slope continues to be a problem.

The daily operation (24 hrs a day) is satisfactory.

Received by: _____

Responsible Party

124

[Signature]

Operator

REID, QUEBE, ALLISON, WILCOX
& ASSOCIATES, INC.
CONSULTING ENGINEERS

FILE INDIANAPOLIS
C180747 02
Sludge Correspondence
1978

ROBERT T. REID, President
WILLIAM F. QUEBE P.E.
JOHN B. ALLISON JR. P.E.
ARTHUR T. WILCOX P.E.
J. EDWARD DOYLE P.E.

March 14, 1978

Mr. Charles Brasher
Planning Branch
Region V
USEPA
230 South Dearborn
Chicago, IL 60604

Re: Construction Grant No. C180747 02

Dear Mr. Brasher:

Based on our conversation of February 21, 1978, it is our understanding that the Environmental Protection Agency does not believe it is necessary for Indianapolis to obtain their written approval prior to transportation of sludge, grease or other hazardous wastes to areas certified by the Indiana State Board of Health for their disposal. If our understanding is in error, or you wish to further clarify this issue, please contact us or Mr. C. Michael Robson of the Indianapolis Department of Public Works, 33008
INDIANAPOLIS, INDIANA 46208

Very truly yours,

David B. Vornehm

David B. Vornehm

DBV/kms

cc: C. Michael Robson, DFW
Neil Denbo, USEPA
Robert Panno, ISSH ✓
Ron Riener, RQAW

328/39A

MAR 15 2 55 PM '78

STREAM POLLUTION CONTROL BOARD



INDIANAPOLIS 46206

1220 West Michigan Street

February 2, 1979

2/7/79

VIA CERTIFIED MAIL

RECEIVED

FEB 9 1979

CC:

Ron Brame, ROWW (

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN. 46217

Dear Mr. Lane:

RE: Renovation of Former McKinley-
Thompson Landfill, 3200 South
Harding Street, Marion County

This will acknowledge the receipt of your letter of January 31, 1979, and the meeting of January 31, 1979, between representatives of the Indiana State Board of Health, the City of Indianapolis, Tousley-Bixler Construction Company, Technesolve, and yourself.

As was explained at the meeting, the only material which was approved by my letter of August 9, 1978, and confirmed by my letter of January 22, 1979, was the sludge/dirt mixture from the bottom of lagoons 3, 4, 5, 7, 8, 9, and 10 of the Belmont Sewage Treatment Plant. It was confirmed at the January 31, 1979 meeting that sewage sludge was taken to the McKinley-Thompson site.

In view of the City of Indianapolis' construction schedule for the advanced wastewater treatment plant, it is our belief that the City of Indianapolis needs some consideration so that construction of the AWT plant can proceed. Therefore, no objection will be raised to the disposal of the sewage sludge and sludge/dirt mixture remaining in lagoon 3 on Area 2 of the McKinley-Thompson site. All the sewage sludge in lagoon 7 is to be disposed of by the City of Indianapolis in the manner previously approved and not deposited at the McKinley-Thompson site. It is to be clearly understood that this action in no way approves the disposal of sewage sludge from lagoons 3, 4, 5, 7, 8, 9, and 10 at the McKinley-Thompson site which occurred prior to January 31, 1979.

It is expected that the sewage sludge from lagoon 3 will be solidified with fly ash at the McKinley-Thompson site and that Area 2 will be completed by June 1, 1979. It is also expected that the sewage

Sludge disposed of in Area 1 will be covered with suitable material
and that Area 1 will be completed by June 1, 1979.

Very truly yours,

Oral H. Hert

Oral H. Hert
Technical Secretary

CDoyle/dw

cc: Frederick Lind, Tousley-Bixler
C. Michael Robson, Indianapolis Department of Public Works ✓
Robert Penno
Marion County Health and Hospital Corporation

SLUDGE DISPOSAL METHOD AT LANDFILL

The renovation of the Lane Landfill, previously known as the McKinley-Thompson Lanefill was accomplished utilizing the following procedures. These procedures are excerpts from a letter from Lane Restoration to Dan Magoun of the ISBH dated April 27, 1978. Lane Restoration was accomplishing the work at the landfill.

"Let me outline the methods we used to comply with the terms of your letter of approval. The debris in Area 2 was bulldozed level and covered with more than 20,000 cubic yards of fly ash, more than 4,000 cubic yards of lime sludge was added and mixed into the fly ash. A berm was constructed around the area to control any surface water run off and the surface water run off was directed into a sedimentation pond.

We then trucked in sewage sludge from the Belmont Avenue Sewage Treatment Plant and deposited it in Area 2. We were unable to spread the sludge at the time due to severe winter weather so we crowded it into the area where we could keep surface water run off under control until the sludge could be spread and provided with a final cover."

The EPA Process Design Manual "Municipal Sludge Landfills" includes a recommended method for landfilling sludge which outlines a procedure which approximates the above utilized procedure. This procedure is detailed in paragraph 5.6.2 - Area Fill Layer as follows:

5.6.2 Area Fill Layer

"At area fill layer operations, sludge/soil mixtures are spread evenly in layers from 0.5 to 3 ft. (0.15 to 0.9 m) thick. This layering usually continues for a number of applications. Interim cover between consecutive layers may be applied in 0.5 to 1 ft (0.5 to 0.3 m) thick applications. Final cover should be at least 1 ft. (0.3 m) thick. An illustration of a typical area fill layer operation is included as Figure 5-10."

FINAL DISPOSITION OF BELMONT LAGOON SLUDGE

Attached hereto are three letters to the ISBH discussing the disposition of materials from the Belmont Site.

Letter from the City of Indianapolis dated April 2, 1979.

Letter from the City of Indianapolis dated April 4, 1979.

Letter from RQAW dated April 6, 1979

These letters include a recap of the estimated quantities of sludge and the disposition of this sludge (whether the sludge was land applied, landfilled or temporarily lagooned prior to land application). Also included is the estimated quantity and the disposition of the grease from the Belmont Grease Pit and the unclassified material from the lagoon bottoms and lagoon levees at the Belmont Site.

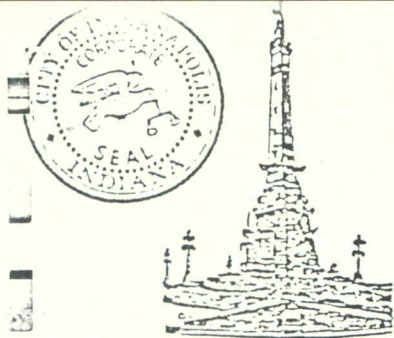
The following discussion indicates the total solids concentration of the sludge in each of the lagoons at the time that the pumping operations ceased and the hauling and disposition in landfill operation began.

SOLIDS CHARACTERISTICS OF SLUDGE REMOVED TO LANDFILL

<u>Lagoon No.</u>	<u>Remarks</u>
1.	Sludge solids concentration was measured at 39.9% from the EPA analysis. No liquid was associated with the sludge in this lagoon.
2.	Sludge solids concentration was measured at 43.5% from the EPA analysis. No liquid was associated with the sludge in this lagoon
3.	The supernatant from this lagoon was pumped to Lagoon No. 7. The sludge under the supernatant was not pumpable as evidenced by the Contractor dropping a clam-shell bucket onto the sludge without it sinking. The solids concentration in this lagoon averaged 20.4% from the EPA analysis. The supernatant contained approximately 7% solids.
4.	Liquid sludge from the top of this lagoon was pumped to Lagoon No. 10. Under the liquid sludge was a solid ash layer. Below the ash layer was the unpumpable sludge which was removed to the landfill. This sludge, was stiff enough to maintain a vertical face when cut. The solids concentration in the lagoon averaged 24.5% from the EPA analysis.
5.	The sludge from Lagoon 5 was taken to the landfill.
6.	The sludge from Lagoon 6 will remain on-site in Lagoons 12 and 16.

SOLIDS CHARACTERISTICS OF SLUDGE REMOVED TO LANDFILL-Continued

<u>Lagoon No.</u>	<u>Remarks</u>
7.	The solid sludge from this lagoon has not yet been removed from site. Removal will be necessary to complete the project. The liquid sludge from this site was taken to Boone County in the Spring of 1979.
8.	The liquid sludge from this lagoon was taken to Boone County until the solids concentration reached 17.1%. The sludge with higher solids concentration was taken to the landfill.
9.	The liquid sludge was taken to Boone County until the solids concentration reached 19.8%. The sludge with higher solids concentration was taken to the landfill.
10.	The liquid sludge was taken to Boone County until the solids concentration reached 20.9%. The sludge with higher solids concentration was taken to the landfill.



CITY OF INDIANAPOLIS

WILLIAM H. HUDNUT, III
MAYOR

DEPARTMENT OF PUBLIC WORKS
2460 CITY-COUNTY BUILDING
INDIANAPOLIS, INDIANA 46204

DIRECTOR
DAVID W. HOPPOCK

April 2, 1979 ✓

Mr. Robert Penno
Construction Grants Branch
Division of Water Pollution Control
Indiana State Board of Health
1330 West Michigan Street
Indianapolis, IN 46202

RE: Belmont General Sitework
Construction Grant No. C180747 02

Dear Mr. Penno:

Herewith, please find a recap of the sludge volumes for the Belmont General Sitework project. Also included are quantities for ash, grease, and unsuitable material. All sludge quantities, except for Lagoons No. 6 and 7, are as calculated from cross-sections. The cross-sections have not as yet been checked. Therefore, these numbers should not be taken as final. The same holds true for ash and grease quantities. Additionally, with respect to the unsuitable materials, per lagoon quantities were not maintained for this item.

Quantities contained within this recap are the most accurate that we have to date. However, until all lagoons have been emptied, and all cross-sections have been checked, final volumes will not be available.

If you require additional information, or have questions regarding this information, please do not hesitate to contact us.

Very truly yours,

David W. Hoppock *cur*
David W. Hoppock, Director

DBV:DWH:clp

Enclousre

cc: C. Michael Robson
David B. Vornehm ✓
George Jageman
Nick Damato

RECAP OF ESTIMATED BELMONT GENERAL SITEWORK QUANTITIES

Herewith, please find an estimated tabulation for sludge, ash, grease and unsuitable material removed from the Belmont Wastewater Treatment Plant as part of the General Sitework Project.

Volumes for lagoons 1, 2, 3, 4, 5, 8, 9 and 10 are from cross-sections. However, the volumes have not as yet been checked. Lagoons 6 and 7 have not been emptied. Therefore, volumes for lagoons 6 and 7 are not from cross-sections and are still estimates from Change Order No. 4 calculations. Quantities removed to Boone County are current to January 1, 1979.

Ash and grease volumes are from unchecked cross-sections.

Unclassified material volumes are from truck counts. Unclassified material can not be allocated to the lagoons.

It should be understood that these volumes are estimates and are subject to revision.

ESTIMATED DISTRIBUTION OF SLUDGE QUANTITIES

Lagoons 1 & 2	43,493 Cys.	To Lane Landfill
Lagoon 3	56,249	
	11,861	To Boone County
	44,388	To Lane Landfill
Lagoon 4	37,339	
	5,954	Supernatant Pumped to and Hauled to Boone County as Lagoon No. 10
	31,385	To Lane Landfill
Lagoon 5	40,338	To Lane Landfill
Lagoon 6	64,409	To be Placed in Lagoon No. 16
Lagoon 7	51,101	
	41,438	To Boone County
	9,663	To be Removed
Lagoon 8	90,231	
	75,554	To Boone County
	2,643	Pumped to and Hauled to Boone County as Lagoon No. 10
	12,034	To Lane Landfill
Lagoon 9	100,557	
	733	To Boone County
	87,683	Redistributed to Lagoons 13, 14, 15, 17 & 18
	12,141	To Lane Landfill
Lagoon 10	47,630	
From Lagoon 4	5,954	
From Lagoon 8	2,643	
Total	56,227	
	51,502	To Boone County
	4,725	To Lane Landfill

Estimated Sludge Recap

Lagoon

1 & 2	43,493
3	56,249
4	37,339
5	40,338
6	64,409
7	51,101
8	90,231
9	100,557
10	47,630
Total	531,347

Estimated Sludge to Boone

Lagoon

1 & 2	0
3	11,861
4	0
5	0
6	64,409*
7	41,438
8	75,554
9	88,416*
10	51,502
Total	333,180

*Sludge was removed from Lagoons 17 and 12 to allow for the transfer of Lagoons 6 and 9 into the remaining lagoons. Payment is based upon the volume of Lagoon 6 and 9.

Estimated Sludge to Lane Landfill

Lagoon

1 & 2	43,493
3	44,388
4	31,385
5	40,338
6	0
7	9,663
8	12,034
9	12,141
10	4,725
	198,167

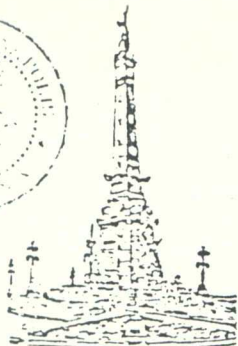
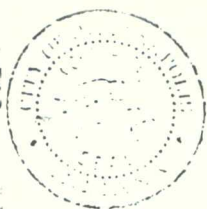
Other Quantities

Ash

Lagoon 1 & 2	124,294	Belmont North Site
Lagoon 4	16,797	Lane Landfill

Grease	14,439	Michigan Landfill
--------	--------	-------------------

Unclassified Material	310,617	Belmont North Site
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CITY OF INDIANAPOLIS

WILLIAM H. HUDNUT, III
MAYOR

DEPARTMENT OF PUBLIC WORKS
2460 CITY-COUNTY BUILDING
INDIANAPOLIS, INDIANA 46204

DIRECTOR
DAVID W. HOPPOCK

April 4, 1979 ✓

Mr. Robert Penno
Construction Grants Branch
Div. of Water Pollution Control
Indiana State Board of Health
1330 West Michigan Street
Indianapolis, IN 46202

Re: Belmont General Sitework
Construction Grant No. C180747-02

Dear Mr. Penno,

This letter shall act as a supplement to our April 2, 1979 letter submitted to you with a recap of estimates of Belmont General Sitework quantities.

We have been verbally requested by Mr. Nicholas Damato to supply further documentation as to the deposition of liquid sludge, solid sludge and clay removed from the lagoon area.

Estimated liquid sludge in cubic yards (cys):

Lagoon 1 and 2	0
Lagoon 3	11,861
Lagoon 4	0
Lagoon 5	0
Lagoon 6	64,409
Lagoon 7	41,438
Lagoon 8	75,554
Lagoon 9	88,416
Lagoon 10	<u>51,502</u>
Total	333,180

Estimated solid sludge (cys):

Lagoon 1 and 2	43,493
Lagoon 3	44,388
Lagoon 4	31,385
Lagoon 5	40,338
Lagoon 6	0
Lagoon 7	9,663
Lagoon 8	12,034
Lagoon 9	12,141
Lagoon 10	<u>4,725</u>
Total	198,167

April 4, 1979
Mr. Robert Penno
Page -2-

Total solid ash (cys):

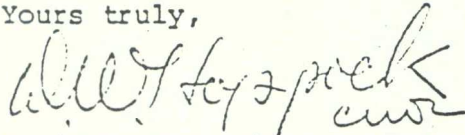
Lagoon 1 and 2	124,294
Lagoon 4	16,797

Additionally, approximately 16,000 cys of clay was hauled to the Lane Landfill and paid for as unclassified material. An additional 294,617 cys was deposited on Belmont North Site. It should be understood that truck counts were not maintained on the quantity of clay removed to the Lane Landfill. Therefore, exact numbers are not available.

These numbers are as reported in our April 2, 1979 letter to Mr. Penno with the exception of unclassified material. This number has been modified to show 16,000 yards being removed to the Lane Landfill.

If you have any questions, do not hesitate to call us.

Yours truly,



David W. Hoppock

DWH/DVB/sc

cc: N. Damato
G. Jageman
D. Vornehm
C. Robson

REID, QUEBE, ALLISON, WILCOX
& ASSOCIATES, INC.
CONSULTING ENGINEERS

ROBERT T. REID, President
WILLIAM F. QUEBE P.E.
JOHN B. ALLISON JR. P.E.
ARTHUR T. WILCOX P.E.
J. EDWARD DOYLE P.E.

April 6, 1979

Mr. Robert Penno
Construction Grants Branch
Division of Water Pollution Control
Indiana State Board of Health
1330 West Michigan Street
Indianapolis, IN 46202

RE: Belmont General Sitework
Construction Grant No. C180747 02

Dear Mr. Penno:

This letter shall act as supplement number 2 to our April 2, 1979 letter submitted to you with a recap of Belmont General Sitework quantities. Herewith, please find the following information:

1. The Indianapolis Belmont Sludge Lagoon Sampling Data, as submitted to Indianapolis by the Environmental Protection Agency.
2. A table summarizing the analysis of the lagoons.
3. A legal opinion concerning the necessity of a change in price for the quantity overrun on sludge disposal.

Additionally, for clarification, the April 2, 1979 letter had a section entitled "Estimated Sludge to Lane Landfill". The total amount of that estimate was 198,167 cubic yards. This is the estimate of the total amount of sludge that went to the Lane Landfill.

Regarding the definition of sludge, grease, contaminated soil and other quantities, there is no differentiation within the specifications between solid sludge and liquid sludge. The sludge is defined as "dark organic and inorganic material in combination with water located in Lagoons 1 thru 18, excluding the ash in Lagoons No. 1 and 2". As a working definition, liquid sludge is that sludge which can be pumped by the Contractor. Solid sludge is that sludge which is not pumpable using equipment designed to pump liquids.

REID, QUEBE, ALLISON, WILCOX
& ASSOCIATES, INC.

CONSULTING ENGINEERS

ROBERT T. REID, President
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JOHN E. ALLISON JR. P.E.
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J. EDWARD DOYLE P.E.

Page -2-

Mr. Robert Penno
April 6, 1979

We are submitting this information in an effort to expedite the flow of data between Indianapolis, the Indiana State Board of Health and U.S. Environmental Protection Agency. A letter from the grantee confirming this submission will be forthcoming.

If you have questions regarding this information or require additional information, please do not hesitate to contact us.

Very truly yours,

REID, QUEBE, ALLISON, WILCOX & ASSOCIATES, INC.

David B. Vornehm
Environmental Specialist

DBV:clp

Enclosure

cc: C. Michael Robson
Dick Damato
George Jageman

March 16, 1977

TO Ronald E Plamen RORW
From C. M. Robson: Indi DPW

Attached are copies of the results of the analyses,
performed by the EPA, of the samples from
the Belmont plant sludge lagoons. I
obtained these this morning from Robert

Revised 15B#

cc. D.W. Hoppock

Wm Lewis

Wm Shuck, TB (2)

Lee Summers

Revised 3-16-77
CR

SLUDGE LAGOON SAMPLING FEB 1 TO 9 1977

LAGOON NO.	SAMPLE NO.	DATE	LAGOON DEPTH	1ST SAMPLE	2ND SAMPLE	3RD SAMPLE	REMARKS
1	2196	2-9	14.2	} AUGER SAMPLE PART OF ENTIRE CORE			
2	2197	2-9	12.6				
3	2198	2-4	14.6	1	11	6	9
4	2199	2-9	15.0	1 1/2 PARTS OF ENTIRE CORE			SOLID LAGOON
5	2200	2-4	13.9	1	6	13	
6	2201	2-1	14.6	1	6.5	9	
7	2202	2-3	14.6	1	6	11	
8	2203	2-2	15.0	1	6	12	
9	2204	2-2	16.4	1	8	13	
10	2205	2-3	16.0	1	7	12.5	
11	2206	2-8	14.0	1	5	11	
12	2207	2-3	17.0	3	8	16	
13	2208	2-1	16.0	1	8	15	
14	2209	2-2	14.0	1	6	13	
15	2210	2-1	17.0	1	7	13	
16	2211	2-8	17.0	1	7	13	
17	2212	2-8	17.0	1	11	16	
18	2213	2-3	17.0	1	8	16	

1] APPROXIMATELY 1 FT BELOW ICE 8" THICK
2] SLUDGE IN LAGOON 4 HAD TO BE AUGERED

APPENDIX 1

Next out set of parameter numbers not used.

[illegible]

District Office

0071

Sampling Date: 1-31-61

77-

Lib. Arsenal Public

May 1904

Analyse Our Data.

City	Unit
7.5	2

1

517 COLUMBIA ST. ALBANY - 5200967

[illegible]

PARAMETER #	00915	00927	00929	00935	01077	01105	01022	01007	01012	10102
SAMPLE ID.	CA	MG	MG/100	K	MG/100	AL	E	EA	EE	CD
UNITS	MG/100	MG/100	MG/100	MG/100	MG/100	MG/100	MG/100	MG/100	MG/100	MG/100
2195	109	8.1	0.2	K 1	9410	49	1170	1170	K 2	122
2196	109	8.1	0.8	K 1	8320	50	1170	1170	K 2	124
2197	112	14.3	0.6	K 1	7280	47	920	920	K 2	123
2199	93.8	7.4	1.7	K 1	15500	54	972	972	K 2	174
2199-ouPL	106	8.0	1.8	K 1	17100	53	967	967	K 2	194
2206	89.9	6.7	1.2	K 1	10600	53	1030	1030	K 2	207
2208	87.9	7.7	1.8	K 1	13000	53	1120	1120	K 2	209
2210	104	7.3	1.6	K 1	11200	52	1130	1130	K 2	246
2211	73.5	6.8	2.4	K 1	11100	52	1020	1020	K 2	247

PARAMETER #	01037	01034	01042	01045	01055	01062	01067	01051	01102
SAMPLE ID,	CO	CR	CU	FE	MIN	MO	NI	FE	SN
UNITS	UG/G	UG/G	UG/G	UG/G	UG/G	UG/G	UG/G	UG/G	UG/G
-----	=====	=====	=====	=====	=====	=====	=====	=====	=====
2196	51	543	902	23700	398	11	K 50	1410	253
2198-0u/L	50	541	905	23700	397	14	K 50	1400	249
2197	49	547	918	23100	619	13	K 50	1510	220
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2199	50	940	1300	22000	432	25	93	1450	230
2199-pu/L	52	1040	1450	21000	475	25	104	1650	290
2206	62	1190	1620	21300	444	23	102	1490	224
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2208	58	1420	1570	24500	503	24	188	1550	254
2210	63	1440	1550	27100	465	24	120	1790	236
2211	58	1950	1520	25700	473	28	192	1110	283

PARAMETER #	01087	01203	01092	00000	00000	XX	ZZ
SAMPLE ID.	V	U3/4	U3/4				
UNITS	=====	=====	=====				
2196	K200	K 10	2650				
2196-du/L	K200	K 10	2630				
2197	K200	K 10	1810				
2199	K200	K 10	2630				
2199-du/L	K200	K 10	2910				
2206	K200	K 10	2850				
2203	K200	K 10	3270				
2210	K200	K 10	3100				
2211	K200	K 10	3220				

PARAMETER #	00215	00227	00229	00235	01077	01105	01022	01007	01012	01027
SAMPLE ID.	CA	MG	NA	K	US/13	AL	R	EA	EE	CD
UNITS	MG/13	MG/13	MG/13	MG/13	US/13	US/13	US/13	US/13	US/13	US/13
2212	74.4	7.2	2.2	K 1		12200	55	932	K 2	183
2213	67.7	6.3	1.7	K 1		11400	47	940	K 2	192
21677	0.5	K0.1	0.5	K 1	K200	K200	10	K 5	K 2	K 20
21677	0.5	K0.1	0.5	K 1	K200	K200	11	K 5	K 2	K 20

PARAMETER #	01037	01034	01042	01045	01055	01042	01067	01051	01102	01152
SAMPLE ID.	CO	CR	CU	FE	MN	NO	NI	PB	SEN	TI
UNITS	US/13	US/13	US/13	US/13	US/13	US/13	US/13	US/13	US/13	US/13
2212	54	1440	1450	22500	493	25	176	1230	209	163
2213	51	1600	1710	22600	467	25	195	1270	277	90
21677	K 10	48	6	94	K 10	K 10	K 50	K 80	K100	K 10
21677	K 10	41	6	96	K 10	K 10	K 50	K 80	K100	K 10

PARAMETER #	01087	01203	01092	00000	00000	00000	00000	00000	00000	00000
SAMPLE ID.	V	Y	ZN	YY	ZZ	XX	XX	XX	XX	XX
UNITS	US/13	US/13	US/13	US/13	US/13	US/13	US/13	US/13	US/13	US/13
2212	K200	K 10	2990							
2213	K200	K 10	3370							
21677	K200	K 10	73							
21677	K200	K 10	90							

THE UNIVERSITY OF CHICAGO

PARAMETER #	00216	00227	00229	00235	01077	01105	01022	01007	01012	10102
SAMPLE ID.	CA	MG	NA	K	UG/ty	AL	B	EO	EE	CD
UNITS	MG/g	MG/g	MG/g	MG/g	UG/ty	UG/ty	UG/ty	UG/ty	UG/ty	UG/ty
2001	84.0	6.3	1.8	K 1		15700	71	963	K 2	173
2001-040L	79.5	6.1	1.6	K 1		15700	76	970	K 2	173
2001-040L	85.3	6.4	1.9	K 1		13600	63	986	K 2	184
2193	122	7.7	1.9	K 1		15200	60	1100	K 2	201
2200	86.0	6.3	1.5	K 1		8740	62	953	K 2	124
2202	74.5	6.7	2.4	K 1		12900	63	994	K 2	126
2203	60.3	6.1	2.2	K 1		11500	55	850	K 2	146
2204	75.9	6.5	1.7	K 1		12500	57	1040	K 2	202
2205	74.6	6.0	1.9	K 1			43	932	K 2	1

PARAMETER #	01037	01034	01042	01043	01055	01062	01067	01051	01102	01115
SAMPLE ID,	CO	CR	CU	FE	MN	MO	NI	PB	SH	TI
UNITS	WG/G	WG/G	WG/G	WG/G	WG/G	WG/G	WG/G	WG/G	WG/G	WG/G
-----	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
2001	67	1420	1320	24600	517	34	177	1030	195	17
2001-04PL	65	1420	1350	24600	485	27	171	1050	229	12
2001-04PL	68	1440	1410	24000	525	37	187	1110	197	17
2198	57	1010	1510	24900	467	27	103	1940	239	26
2200	63	767	1180	23000	400	13	65	1370	273	19
2202	50	1210	1490	20500	458	22	167	1480	229	14
2203	53	1340	1520	22700	440	27	175	1240	262	17
2204	53	1460	1540	25300	437	24	164	1360	240	12
2205	49	1080	1540		392	17	151	1490	243	15

PARAMETER #	01097	01203	01092	00000	00000	00000	XX	ZZ
SAMPLE ID	V	Y	ZH	YV	ZZ	XX		
UNITS	UG/g	UG/g	UG/g					
2001	K 10	K 10	3370					
2001-0u/L	K 10	K 10	3160					
2001-0u/L	K 10	K 10	3420					
2193	K 10	K 10	3040					
2200	K 10	K 10	2590					
2202	K 10	K 10	3260					
2203	K 10	K 10	3270					
2204	K 10	K 10	3000					
2205	K 10	K 10	2870					

02-25-77

PARAMETER #
-SAMPLE ID.
UNITS

2207

00916 00927
CA MG
MG/g

76.2 6.1

00929
MA
MG/g

1.4

00935
K
MG/g

K 1

01077
UG/g

01105
AL
UG/g

10500

01022
E
UG/g

47

01012
FE
UG/g

K 2

1010
CU
UG/g

10

PARAMETER #
-SAMPLE ID.
UNITS

2207

01027 01024
CO CR
UG/g

43 955

01042
CU
UG/g

1230

01045
FE
UG/g

21600

01055
MN
UG/g

263

01062
MO
UG/g

22

01067
NI
UG/g

98

01102
EN
UG/g

234

0115
TI
UG/g

10

PARAMETER #
-SAMPLE ID.
UNITS

2207

01037 01203
V Y
UG/g

K200 K 10

01032
ZN
UG/g

2210

00000
YY

00000
ZZ

XX

T

Drift

Sediment samples

Sample No.	7010 total solids	7012 total vol solids	7013 COD Solid Dry wt	TKN Solid Dry wt	Phos Solid Dry wt	Hy Solid Dry wt	Phenols Solid Dry wt	Cyanide Solid Dry wt
Units	g	g	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
77-								1.6600
1-2196	39.9	29.0						2
1-2197	43.5	29.5						3
1-2198	20.1	32.3						4
1-2199	24.5	29.0						5
1-2200	14.9	36.5						6
1-2201	13.2	40.3						7
1-2202	13.1	39.4						8
1-2203	10.6	118.0						9
1-2204	13.6	43.0						10
1-2205	13.5	114.2						11
1-2206	23.6	53.3						12
1-2207	13.5	39.4						13
1-2208	10.1	41.3						14
1-2209	9.7	45.7						15
1-2210	13.7	48.9						16
1-2211	7.9	46.8						17
1-2212	7.7	43.6						18
1-2213	10.3	45.5						19
1-2214								20
1-2215								21
1-2216								22
1-2217								23
1-2218								24
1-2219								25
1-2220								26
1-2221								27
1-2222								28
1-2223								29
1-2224								30
1-2225								31
1-2226								32
1-2227								33
1-2228								34
1-2229								35
1-2230								36
1-2231								37
1-2232								38
1-2233								39
1-2234								40
1-2235								41
1-2236								42
1-2237								43
1-2238								44
1-2239								45
1-2240								46
1-2241								47
1-2242								48
1-2243								49
1-2244								50
1-2245								51
1-2246								52
1-2247								53
1-2248								54
1-2249								55
1-2250								56
1-2251								57
1-2252								58
1-2253								59
1-2254								60
1-2255								61
1-2256								62
1-2257								63
1-2258								64
1-2259								65
1-2260								66
1-2261								67
1-2262								68
1-2263								69
1-2264								70
1-2265								71
1-2266								72
1-2267								73
1-2268								74
1-2269								75
1-2270								76
1-2271								77
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1-2285								91
1-2286								92
1-2287								93
1-2288								94
1-2289								95
1-2290								96
1-2291								97
1-2292								98
1-2293								99
1-2294								100

U.S. Government Printing Office 1975-450-447/2107

ENVIRONMENTAL PROTECTION AGENCY, REGION V BASIC DATA FORM

1

0071.51051771

District Office

[illegible]

Lab. Arrival Date $\frac{1}{\text{Day}} = \frac{1}{\text{Month}} \times \text{Year}$

Analysis of Data

1901/12/25

Account No. 1

Parameter No	Sample Name	Ammonia as N	Total Kjeldahl Nitrogen	Organic Nitrogen	Total P	Dis. P.	COO	TOC	Total Mercury
1	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	K100	0.1500	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

WATER QUALITY ANALYSIS
LAB ID # 200040 RECORD # 23032

SAMPLE LOCATION: BELMONT STP-- GREASE PIT, INDPLS
ATION ID: 394300086120002 LAT.LONG.SEO.: 394300 0861200 02
ATE OF COLLECTION: BEGIN--760719 END-- TIME--
ATE CODE: 18 COUNTY CODE: 097 PROJECT IDENTIFICATION: 3
TA TYPE: 2 SOURCE: OTHER GEOLOGIC UNIT:

OMMENTS:

EE HORSLEY-SBH

DRIN	BTM UG/KG	2500	HEPT EPOX	BTM UG/KG	0.
HLORDANE	BTM UG/KG	4400	HEPTACHLOR	BTM UG/KG	0.
D	BTM UG/KG	0.0	LINDANE	BTM UG/KG	1300
E	BTM UG/KG	0.0	PCB	BTM UG/KG	87000
OT	BTM UG/KG	3700	PCN	BTM UG/KG	0
ELDRIN	BTM UG/KG	13	SAMPLE SOURCE CODE		40
DRIN	BTM UG/KG	0.0	TOXAPHENE	BTM UG/KG	0

PARAMETER UNITS	Lagoon Number																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Total Solids	39.9	43.5	20.4	24.5	14.9	13.2	13.7	10.6	13.6	13.5	23.6	13.5	10.1	9.7	13.7	7.9	7.2	10.2
Total Vol. Solids	29.0	29.5	33.3	29.0	36.5	40.3	39.4	43.0	43.8	44.2	53.3	39.8	41.3	45.7	48.9	46.8	43.6	45.5
Total Cd	122	123	241	176	124	176	166	144	202	157	207	187	200	-	240	259	183	192
Total Zn	>650	1,410	3,040	>630	2,590	3,370	3,360	3,270	3,000	2,870	2,850	2,810	3,270	-	3,100	3,220	2,990	3,370
Total PCB	<.3	.21	9	17	11	60	20	24	22	26	26	17	41	24	18	66	30	22
Total As	50	20	15	50	25	20	25	15	23	25	24	25	21	24	27	30	23	30
Fec. Coliform	0.2	.2	0.2	4	460	71	93	5,400	75	2,400	4	43	11	460	2.4	4	460	460
Cyanide	31	46	87	74	43	100	100	140	130	110	52	150	150	170	150	170	150	92
Nitrate (acN)	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Ammonia (acN)	15,000	4,100	5,100	2,100	5,100	6,800	7,200	1,600	8,700	8,200	4,700	8,400	9,500	9,800	7,900	10,100	12,000	9,200
TKN	15,000	15,000	18,000	15,000	17,000	20,000	23,000	27,000	26,000	25,000	15,000	22,000	26,000	31,000	21,000	30,000	30,000	28,000
Total P	12,000	11,000	21,000	22,000	11,000	24,000	25,000	26,000	23,000	22,000	14,000	21,000	25,000	26,000	14,000	23,000	24,000	26,000
Total Al	8,410	7,280	15,200	15,500	8,740	15,700	12,800	11,500	12,500	-	10,000	10,500	13,000	-	11,200	11,100	12,300	11,400
Total Barium	1,170	820	1,100	872	918	968	994	890	1,040	932	1,080	855	1,120	-	1,130	1,020	982	940
Total Cr.	543	547	1,010	940	767	1,420	1,210	1,360	1,460	1,080	1,190	1,330	1,420	-	1,440	1,950	1,440	1,600
Total Co.	51	49	57	50	63	67	50	58	58	49	62	48	58	-	63	58	54	51
Total Cu.	909	918	1,510	1,300	1,150	1,390	1,490	1,520	1,540	1,540	1,320	1,330	1,570	-	1,590	1,520	1,450	1,710
Total Fe.	23,700	22,100	24,800	22,000	23,000	24,600	20,500	25,700	25,800	-	27,300	21,600	24,500	-	27,100	25,100	22,500	22,600
Total Pb.	1,410	1,510	1,940	1,450	1,370	1,000	1,480	1,260	1,340	1,490	1,490	1,510	1,550	-	1,790	1,110	1,230	1,270
Total Mn.	398	(19)	467	432	403	517	458	440	437	392	444	363	503	-	465	473	493	467

* MPPH/100 ml : 10³

Table 1: Analysis of Lagoons

From: Robson, C. Michael "Indianapolis Land Spreading Program"
 Acceptable Sludge Deposit Techniques, Cost, Benefit,
 Risk, Health and Public Acceptance
 Information Transfer, Inc., Rockville, Maryland, 1978.

BAKER & DANIELS

810 FLETCHER TRUST BUILDING
INDIANAPOLIS, INDIANA 46204

317-636-4535

WASHINGTON OFFICE:
SUITE 990 SOUTH, 1800 K STREET N.W.
WASHINGTON, D. C. 20006
202-725-1555

February 1, 1979

KARL J. STIFFER
JOHN D. COCHRAN
BYRON P. HOLLETT
DAN R. WINGFIELD
CHARLES L. WHISTLER
EARL CLAY ULYN, JR.
RICHARD E. ARDMAN
J. B. KING
STEPHEN W. TERRY, JR.
THOMAS M. LOFTON
JOSEPH E. CANNON
DANIEL E. JOHNSON
ROBERT L. JENSEN
VINCE L. BEELER
WILLIAM F. LANDERS, JR.
ROBERT K. DAVIES
RICHARD M. LEAGRE
THEODORE E. BOREN
MICHAEL E. MAINE
PETER C. WARD
NORMAN P. ROWE
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WILSON E. STOKER
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JOHN E. POLLEY
JOHN B. BRIDGES
BRIAN K. BURKE
THEODORE W. BROWNE II
ROBERT P. CHAMNESS
STEVEN L. HOUSTON
J. DANIEL OGDEN

PAUL M. ROWE
OF COUNSEL

Reid, Quebe, Allison,
Wilcox & Associates, Inc.
3901 Industrial Boulevard
Indianapolis, Indiana 46254

Re: Contract for General Sitework
Belmont Wastewater Treatment Plant No. 1

Gentlemen:

You have requested our opinion concerning the proper interpretation of the construction contract for "General Sitework -- Belmont Wastewater Treatment Plant No. 1" ("Contract") between the City of Indianapolis Department of Public Works ("Owner") and Tousley-Bixler Construction Co., Inc. ("Contractor"), as respects disposition of a portion of the removed sludge in a sanitary landfill. Specifically the question is whether such action is covered by the existing Contract or whether it gives rise to a right on the part of the Owner to require a change order, and perhaps a different unit price, for the sludge disposed of in that manner.

We understand the facts to be that certain sludge was found, during the course of removal, to be hardened or of such a thickened consistency as to be unpumpable and thus not capable of convenient land application in the same manner as the liquid sludge; that the Contractor arranged with a sanitary landfill for the deposit of such sludge there; that such landfill disposition was made with the knowledge and prior approval of the State Board of Health, the Owner and you. The State Board of Health's approval of such landfill disposition establishes that the disposition was an environmentally proper method of disposal. We further understand that the sludge from lagoons 1 and 2 was disposed

February 1, 1979

of at a landfill during the winter of 1977-78; that other unpumpable sludge has been disposed of in a landfill regularly since mid-August, 1978; and that sludge so removed and disposed of has been the subject of monthly progress payments requested and paid at the Contract unit price for sludge removal.

Based upon our examination of the Contract documents and research of applicable Indiana law, we are of the opinion that the Contractor was subject to an enforceable obligation to remove such sludge and dispose of it in an environmentally acceptable manner; and that the Owner was and is obligated to pay the same price for such removal as it would have been obligated to pay had the sludge been the subject of land application. Neither party to the Contract may validly maintain a position that this matter is outside the terms of the existing Contract or a subject to be dealt with under a change order or other supplement to the Contract. Stated differently, it is our opinion that the object of the Contract was the removal of the sludge from the site; it is a condition or qualification of such obligation that the Contractor not dispose of the sludge in a manner not having appropriate environmental approvals; but the Contract cannot, in our view, be properly interpreted to mandate that sludge be disposed of by land application, or in any other particular manner.

The object and purpose of the Contract was not to fertilize land. It was for the Owner to have the sludge removed from its construction site. In our opinion, the Contractor was free to dispose of that sludge in any manner or combination of means which it chose that met the environmental protection criteria prescribed under the Contract. If doing so involved greater cost than contemplated by the Contractor when it bid, that was the Contractor's problem from which it was (within a broad spectrum) entitled to no relief. If doing so involved lesser cost to the Contractor than initially contemplated, the Owner nonetheless remains obligated to pay the price that it agreed to pay to rid itself of the sludge. Whether landfill disposition was cheaper or more expensive than land application is not relevant and will not give rise to a legitimate change order request from either party.

The primary purpose of the City of Indianapolis, as Owner, was to rid itself of the interference to new plant

February 1, 1979

construction and operation presented by the presence of sludge, ash, grease and other contaminants on the site. Of course a condition, qualifying the implementation of that purpose, was that any disposal method be environmentally acceptable. The purpose of the Contract is well evidenced in Section 02242 of the Specifications. Among the "General Requirements For All Work Under This Section", one finds:

1.03(D) Methods of disposal and transportation of all materials shall have the approval or concurrence of all agencies having jurisdiction.

1.03(F) "Approved Landfills" shall be defined as landfill sites having the written approval of all agencies having jurisdiction for the disposal of the specific material proposed to be disposed of therein.

1.03(O) All sludge, ash and contaminated materials not disposed of on-site and all grease shall be disposed of only at "approved" landfills.

1.03(R) All sludge and contaminated materials removed from the Work Site shall become the property of and the sole responsibility of the Contractor.

These general requirements clearly embrace the possibility that sludge might be disposed of in an approved landfill and indeed would be so disposed of unless other means were permitted. Moreover, they are quite explicit in fixing ownership of removed sludge in the Contractor and sole responsibility for it, once removed, in such Contractor. The Contractor was not free to dispose of the sludge in a manner not approved or concurred in by agencies having jurisdiction of waste disposal. Conversely the Contractor was not inhibited in disposing of such sludge in any manner that did have the concurrence or approval of such agencies. Disposition in an "approved" landfill--with the explicit approval of the State of Indiana--clearly satisfied the condition for an environmentally acceptable disposal method. With that qualification met, the disposition within a landfill was explicitly authorized by the general requirements.

The Specifications and Invitation to Bid invited contractors to bid on four alternative options to effect the Owner's object of being rid of the unwanted materials.

February 1, 1979

Option 3 offered the option of off-site transportation and disposal of the sludge using land application. However, nowhere in the specifications is there any recital or requirement mandating that all sludge be disposed of by such method. Indeed, Section 2.03 cannot, in our judgment, be so construed. In fact, the general requirements expressly recite that some of the sludge may be contaminated and that contaminated materials not disposed of on-site must be disposed of in an approved landfill. Thus, Option 3 not only did not state, it could not have intended, a mandate that all sludge be land applied, because any such interpretation is contrary to the statements and anticipated conditions reflected in the general requirements applicable to the work.

It is clear from the language and purpose sought that the option bid was not meant to fix an exclusive method of disposal. Options obviously were used as a method of assuring that the bidder chosen for award of the Contract had made the necessary preparations to be able to dispose of the sludge, ash and grease once they were removed from the site, and that the bid permitted the Owner and the Project Engineer reasonably to predict that the work would be completed in a proper and timely manner. The Owner's evident intention in awarding this Contract was to get the sludge and other waste materials removed from the Belmont site and disposed of in an environmentally acceptable manner. There is no mandate in the Contract that the sludge be disposed of in any specific manner or location, provided the method used conforms to applicable environmental constraints.

Indeed, under Section 1.03(R), above referred to, the Contractor owned the removed sludge and was free to adopt its choice of disposal means if it did not run afoul of environmental constraints. Had the Contractor been able to sell it to a fertilizer manufacturer, once removed from the site, such action was within its right under the Contract so long as the environmental constraints were met (even though the Contractor's profit may have been greater than anticipated). Conversely, had the Contractor been required to haul the sludge greater distances in order to find an acceptable landfill or land to which to apply it, such added costs would fall upon the Contractor (even though its financial benefit might have been less than expected).

The "Invitation to Bid" and Article 1.02 "Measurement and Payment" of Section 02000 "Site Work" recite that

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payment will be made on the basis of vacated volume resulting from sludge removal. Mr. Hert's letter of April 19, 1977 (specifically incorporated in the Contract) also recites that:

"4. Sludge removed will be calculated and paid on the basis of vacated volume resulting from sludge removal, lagoons 1 through 10."

The Contract does not make the price payable for removal of the sludge dependent upon where or how the Contractor effects disposition of the sludge. Obviously, both parties to the Contract had a certain expectation as to how and where disposition would primarily be effected. But that expectation is not a part of the Contract. Means of performance by a Contractor are not subject to restriction beyond restrictions explicitly contracted or reasonably implied from the nature of the work to be done.

The Contract expressly authorizes sludge disposal in an "approved" landfill as an acceptable disposal method. It is a general rule of contract construction that no part of a contract will be treated as surplusage if it can be given a meaning reasonably consistent with the other parts of the contract. Oard v. Rechter, ___ Ind.App. ___, 332 N.E.2d 392 (1975), Equitable Life Assur. Soc. of U.S. v. Crowe, ___ Ind.App. ___, 354 N.E. 2d 772 (1976).

It is also significant that there is no requirement in Mr. Hert's April 19 letter that the sludge actually be disposed of by land application. In fact, the letter specifically holds out the possibility that land application will not meet acceptable environmental standards, at least as to all of the sludge, where it states as a "condition of approval":

"An application rate [is] to be established by the staff and a statement [shall be provided] that the application rate does not absolve the applicant from any liability, as the Board does not (as yet) recognize any application rate as being environmentally fool proof."

When the Stream Pollution Control Board and the Indiana State Board of Health gave their express approval

February 1, 1979

in 1977 and again in 1978 to disposal of sludge in the landfill, such action was well within the reasonable expectation of the Contract. The Contract documents do not give rise to a right to price adjustment by reason of such approval.

Indiana law provides that the intention and contractual obligations of the parties is determined from the language employed in the Contract where there is no ambiguity or mistake, and where there has been no fraud or deception practiced to induce execution. Indiana Gas & Water Co. v. Williams, 132 Ind. App. 8, 175 N.E.2d 31 (1961), Wall Construction Co. v. Chipman, 202 Ind. 434, 175 N.E. 132 (1931).

There is no justification under the terms of the Contract which would permit the Contractor or the Owner to request a change order or modification of the Contract based upon the place of disposal. The only basis for a change order or modification would be some change in the removal phase of the work which requires the Owner to order a "change in the work." A change in place or method of disposal at the Contractor's election is not a change in the work. Perini Corp. v. United States, 381 F.2d 403, 411 (1967).

It might also be noted that unlike a standard federal government contract, this contract has no provision permitting the Contractor to request a change order based on changed physical conditions. General Condition No. 5 permits the Owner alone to "order modifications in the work to be done in connection with the Contract Documents which may add to, alter, or deduct from the Work. Modification, when ordered by the Owner shall be performed under the terms and conditions of the Contract Documents." Since the Contractor is removing the sludge and waste materials from the lagoons as required by the terms of the Contract, there is no basis for the Owner requesting a modification order because of landfill disposition.

Any ambiguity in the Contract will be resolved by the construction given to it by the parties. Oxford Development Corp. v. Rausauer Builders, Inc., 159 Ind. App. 622, 304 N.E.2d 211 (1973), Pierce v. Yochum, Ind.App. ___, 330 N.E.2d 102 (1975). It is to be noted that the open and well-known use of landfill disposition, coupled with the subsequent processing and payment of progress payments from the first of

Reid, Quebe, Allison,
Wilcox & Associates, Inc. -7.

February 1, 1979

1978 without attempt to alter the price to be paid for removal, confirm a construction of the Contract by the Owner to the same effect as we believe to be clear and evident from the Contract documents.

Finally, it is important to note that the Contract gives the Project Engineer express authority to interpret the Contract and to resolve any dispute as to the meaning of the specifications. General Condition No. 3 provides:

INTERPRETATION OF PLANS AND SPECIFICATIONS:

Plans and Specifications complement each other. In the event that any provision of one Contract Document appears to conflict with the provision of another Contract Document, the Owner's Representative shall interpret the full meaning and intent of the documents.

* * *

Any dispute that may develop with the Contractor as to the meaning of the Specifications shall be interpreted by the Project Engineer; such decision shall be final and binding on all parties concerned.

Indiana courts, as well as those of most other states, will give substantial weight to the expertise and judgment of the engineer absent fraud or such gross mistake as to imply bad faith or failure to exercise honest judgment in resolving disputes within the area of his contractually assigned responsibilities. You, as Project Engineer are, of course, the author of most of the Contract documents and are assigned authority to interpret the specifications. Based on our conversations with you, it is our understanding that your interpretation as to the intended meaning of the specifications is consistent with our view as to their legally binding effect. We believe it to be entirely appropriate for you so to advise the Owner and any other interested parties and, further, that such interpretation should be recognized by them as binding. See, e.g., Lake Michigan Water Co. v. United States Fidelity & Guaranty Co., 70 Ind.App. 537, 123 N.E. 703 (1919); James I. Barnes Const. Co. v. Washington Township,

Reid, Quebe, Allison,
Wilcox & Associates, Inc. - 8

February 1, 1979

134 Ind.App. 461, 184 N.E. 2d 763 (1962); Wilson Contracting Co. v. State, 224 A.2d 396 (1966); Williams v. Chicago, etc., R. Co., 112 Mo. 463, 20 S.W. 631 (1892); City of San Antonio v. McKenzie Const. Co., 136 Tex. 315, 150 S.W.2d 989 (1941); Terminal Const. Corp. v. Bergen County, etc., 34 N.J. Super. 478, 112 A.2d 762 (1954); Maskel Const. Co. v. Town of Glastonbury, 158 Conn. 592, 264 A.2d 557 (1969).

We should add that we have not considered any question of overruns and this opinion should not be interpreted as expressing any view as to the rights of the parties respecting quantities in excess of the parameters fixed by the Contract.

If you have any questions respecting our opinion, we shall be happy to discuss them with you.

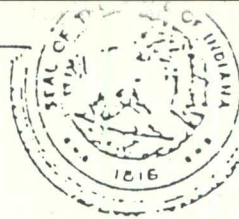
Very truly yours,

BAKER & DANIELS

Charles T. Whittier

CLW:jp

STATE OF INDIANA
STREAM POLLUTION CONTROL BOARD



INDIANAPOLIS 46206

1330 West Michigan Street

1/30/79.

January 29, 1979

Copies to

D.W. Hoppock

Ronald Richer RORC

Joseph Giglio GDT

VIA CERTIFIED MAIL

Mr. W. Jack Lane
Lane Restoration
4600 Bluff Road
Indianapolis, IN 46217

Attachment I RECEIVED

JAN 31 1979

R.Q.A.W. & ASSOC. INC.

Dear Mr. Lane:

Re: Renovation of Former McKinley-
Thompson Landfill at
3200 South Harding Street
Marion County

This will acknowledge your phone conversation with Mr. Doyle of the Solid Waste Management Section on December 18, 1978, concerning the above-referenced subject.

You are hereby advised that the Stream Pollution Control Board's "non-objection" to the renovation plan for the McKinley-Thompson Landfill tendered on August 9, 1978, is subject to all the conditions included within that letter. Additionally, as a point of clarification, the material utilized as fill from the lagoons at the Belmont Avenue Sewage Treatment facility is defined the same as in your letter of April 27, 1978. "As they (Tousley-Bixler Construction Company) get near the bottom of each lagoon the material becomes too heavy to be pumped. It will then be bulldozed into piles or windrows, loaded into dump trucks with a front-end loader and removed from the site. Much of the clay originally used as a liner in the bottom and sides of each lagoon will be bulldozed in and mixed with the sludge making it a good material to be used in our reclamation project."

Records indicate that 80 percent of the material held in Lagoon No. 4 went to the McKinley-Thompson site. Certainly this is more than the lagoon bottoms as described above. Be advised that the intent of the August 9, 1978, letter applies only to this lagoon bottom material. A separate approval is required for disposal of sewage sludge exclusive of that described in the aforementioned renovation plan.

You are hereby directed to immediately stop depositing sludge from the Belmont Avenue Sewage Treatment Plant lagoons at the McKinley-Thompson landfill. No material other than the sludge/dirt mixture from the interface of the sludge and lagoon bottoms is to be deposited at the McKinley-Thompson site.

Because of your apparent failure to follow the renovation plan for the McKinley-Thompson landfill, you are to submit, in writing, the following within ten working days from receipt of this letter:

1. The measures which will be instituted to correct the deposition of unauthorized materials.
2. The measures that will be instituted to insure that only material approved, sludge/dirt mixture from the bottoms of the lagoons, is hauled to and deposited at the McKinley-Thompson site.

Failure to reply will necessitate that the Stream Pollution Control Board reevaluate its nonobjection position on the renovation project.

If you have any questions, please contact Mr. Eggleston at AC 317/633-0176.


Very truly yours,

Oral H. Hert

Oral H. Hert
Technical Secretary

JMEggleston/rm

cc: Marion County Health and Hospital Corporation
Indianapolis Department of Public Works ✓
Tousley-Bixler Construction Company
Techno-Solve
Robert Penno

REID, GIBB, ALLISON, WILCOX ASSOCIATES INC. 	Made by BRUCE E. PROKOF	Date 1-23-79	Job No. BELMONT GEN. SITE WORK
	Checked by	Date	Sheet No. 1 OF 3
For SLURRY TAIL LANE LANDFILL - UNIT PRICE ESTIMATE			

Attachment J

COMPUTED ON 2 TEN HOUR SHIFTS PER DAY

120 LOADS PER 10 HOUR SHIFT, 1 DAY + 1 NIGHT SHIFT = 240 LOADS

240 LOADS \times 10 CYS / LOAD = 2400 CYS / DAY.

EQUIPMENT COSTS : FROM "LOUISVILLE ENGINEER DISTRICT EQUIPMENT AND OPERATING EXPENSE SCHEDULE" DATED 1977.
COSTS ONLY INCLUDE OPERATING EXPENSE AND FUEL.
PRICES ARE FOR USE UNDER SEVERE CONDITIONS.

BASIC D-8 $\$42.25$ / HR
BLADE $+ \$4.88$ / HR

 $\$47.13$ / HR $+ 10\%$ = $\$51.84$ / HR.

GRADALL (272 HP. 1.25 CYD) = $\$37.60$ / HR $+ 10\%$ = $\$41.36$ / HR.

CRANE (NORTHWEST, 40 TON W/ 50' BOOM)

BASE = $\$34.41$ / HR
CLAM = $+ \$2.68$ / HR
DRAGLINE = $+ \$1.20$ / HR

CRANE WITH CLAM = $\$37.09$ / HR $+ 10\%$ = $\$40.80$ / HR.

CRANE WITH DRAGLINE = $\$35.61$ / HR $+ 10\%$ = $\$39.17$ / HR.


EQUIPMENT COSTS : FROM MEANS - 1978

4- 300 W LIGHTS = $\$16.45$ / DAY = $\$2.06$ / HR.

OPERATING EXPENSE = $+ \$2.30$ / HR.

 $\$4.36$ / HR.

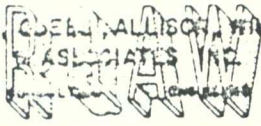
PICK-UP TRUCK : FROM MEANS - 1978 = $\$3.92$ / HR.

REID GILLIS & ASSOCIATES INC. 	Made by BRUCE E. PROCTOR	Date 1-23-79	Job No. BELMONT GEN. SITEWORK
	Checked by	Date	Sheet No. 2 OF 3

For SULLY TO LAKE LANDFILL - UNIT PRICE ESTIMATE

MATERIAL EQUIPMENT LABOR

DUMP FEE (240 LOADS X \$56.00/LOAD)	13,440.00		
CLAM W/CLAM (2 SHIFTS X 10 HR/SHIFT X \$40.80/HR)		816.00	
CLAM W/DAGLINE (2 SHIFTS X 10 HRS/SHIFT X \$39.17/HR)		783.40	
SITE DOZERS (2 X 2 SHIFTS X 10 HRS/SHIFT X \$51.84/HR)		2,073.60	
DUMP DOZER (2 SHIFTS X 10 HRS/SHIFT X \$51.84/HR)		1,036.80	
TRUCK (2 SHIFTS X 10 HRS/SHIFT X \$3.92/HR)		78.40	
POWER BROOM (2 SHIFTS X 10 HRS/SHIFT X \$4.30/HR)		86.00	
SIGNAL (2 SHIFTS X 10 HRS/SHIFT X \$41.36/HR)		2,272.20	
LIGHTS (1 SHIFT X 10 HRS/SHIFT X \$4.36/HR)		43.60	
DAY OPERATORS (7 X 11 HRS X \$13.19/HR)			1,015.63
DAY OILER (3 X 11 HRS X \$9.39/HR)			309.87
DAY TEAMSTER (1 X 11 HRS X \$10.87/HR)			119.57
DAY LABORER (1 X 11 HRS X \$9.27/HR)			101.97
NIGHT OPERATORS (7 X 11 HRS X \$15.16/HR)			1,167.32
NIGHT OILERS (3 X 11 HRS X \$10.80/HR)			356.40
NIGHT TEAMSTER (1 X 11 HRS X \$12.50/HR)			137.50
NIGHT LABORER (1 X 11 HRS X \$10.65/HR)			117.15
DAY SUPERV. (4 HRS X \$14.69/HR)			58.76
NIGHT SUPERV. (11 HRS X \$16.45/HR)			180.95
	13,440.00	5,745.00	3,565.12
EQUIPMENT REPAIR: 3% PARTS	172.35		
3% LABOR			172.35
2% IN + OUT			114.90
TOOLS: 3% SMALL TOOLS	106.95		
2% SHOW-UP TIME			71.30
	13,719.30	5,745.00	3,923.67

REID, GEL, ALLISON, WILCOX ASSOCIATES INC. 	Made by BRUCE E. PROKOP	Date 1-23-79	Job No. BELMONT GEN. SITEWORK
	Checked by	Date	Sheet No. 3 of 3
For TO LAKE LANDFILL - UNIT PRICE ESTIMATE			

MATERIAL	13,719.30
EQUIPMENT	5,745.00
LABOR	3,923.67
FRINGE BENEFITS (3,923.67 x 12%)	470.84
	<hr/> 23,858.81
4% SALES TAX (172.35 + 106.95) x 4%	11.17
15% O.H. + P.	3,578.82
	<hr/> 27,448.80
1.1% GROSS TAX	301.94
	<hr/> 27,750.74

$$27,750.74 / \text{DAY} \div 2400 \text{ CYS/DAY} = \$11.56 / \text{CYD}$$

REID, GREGG, ALLISON, WILCOX RAW ASSOCIATES INC.	Made by	Date	Job No.
	Checked by	Date	Sheet No.
For			

DATE	LOADS	SHIFTS *	DATE	LOADS	SHIFTS *
12-5	90	1	1-10	147	1
12-6	110	1	1-11	123	1
12-11	118	1	1-12	137	1
12-12	119	1	1-13	138	1
12-13	133	1	1-16	152	2
12-14	122	1	1-17	176	2
12-15	132	1	1-18	135	1
12-16	188	2	1-20	117	1
12-17	110	1	1-22	272	2
12-18	114	1	1-23	240	2
12-19	115	1	1-25	242	2
12-20	79	1	1-26	276	2
12-21	139	1	1-27	85	1
12-22	114	1	1-29	235	2
12-23	182	2	1-30	316	2
12-26	264	2	1-31	127	1
12-27	245	2	2-1	294	2
12-28	232	2	2-2	337	2
12-29	59	1	2-3	272	2
12-30	67	1	2-6	300	2
1-5	45	1	2-7	322	2
1-6	95	1	2-8	247	2
1-8	93	1	2-9	149	1
1-9	91	1			

TOTALS = 7895 66

$$\frac{7895 \text{ LOADS}}{66 \text{ SHIFTS}} = 119.6 \text{ LOADS / SHIFT}$$

$$2 \text{ SHIFTS / DAY} \therefore 239.2 \text{ LOADS / DAY}$$

* THE ASSUMPTION HAS BEEN MADE THAT > 150 LOADS = 2 SHIFTS, ≤ 150 LOADS = 1 SHIFT.

Attachment K

RECEIVED

6-10-1970

5.2.5.14. 2. 40500, 1.1.1.

Attention: Mr. Ron Riemer

Gentlemen:

Recently you advised us it was your feeling the quantities for the selected items of work covered by unit prices were going to overrun. You stated it was your intention to estimate the overrun and to start the paper work for a grant amendment to cover any extra cost caused by the overrun.

At that time you requested from us an estimate of the cost which was to be applied to the sludge overrun and, more specifically, you limited the cost to sludge being hauled to the landfill. It seems to me that in preparing a total cost for the overruns you would need an estimate of the cost on all unit prices; however, at this time we are enclosing an estimate of the cost to be applied to overrun only on sludge. Further, it must be understood that the cost applies only to sludge being moved to the landfill. Our estimated cost is \$13.13 per cubic yard.

As you are aware it is impossible at this time and will be until final cross sections are taken and final quantities computed, to determine the overrun and thus determine the final cost; however, you should be able to get the necessary paper work started at this time.

We will provide any other estimates that will assist you in this effort.

Very truly yours,

TOUSLEY-BIXLER CONSTRUCTION CO. INC.

William D. Shuck, Vice President

enclosure



ESTIMATE NO.

Sludge To Landfill

SHEET NO.

OF

LOCATION

OVER RUN

ESTIMATOR

ARCHITECTS

UNIT PRICE ESTIMATE CHECKED - QUAN. _____ EXT. _____ FINAL _____

SUBJECT

DATE _____

[illegible]